

COMPUTERWORLD



The 'net, cheap? Think again . . .

First in a two-part series.

By Gary H. Antes and Kim S. Nash

While vendors of all stripes and sizes race to embrace the Internet, many users are holding back and worrying. Their concerns run the gamut from cost, administration and security to performance and reliability.

What are the economics of using the Internet? Where is it headed? Who is in charge? As one user lamented, "There is no one to see if something goes wrong."

Users often see the Internet as free — or at least very cheap — but they suspect that may be too good to be true. They may be right.

"There has been concern that there might be a kind of price bit-and-switch going on," said Raymond H. Howling, vice president for issues advocacy at the Society for Information Management.

Businesses worry that an Internet venture that costs them very little today will later leap in price, leaving no choice and no escape.

At issue is who will pay — and how much — for the boost in end-to-end network capacity that is needed as bandwidth-hungry applications proliferate.

Internet, page 28

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ATM slows it down

Low-speed option also reduces prices

By Neal Weinberg
BARKING RIDGE, N.J.

ATM is fast — too fast.

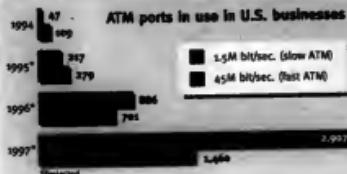
Asynchronous Transfer Mode was designed by international standards bodies to carry voice, data and video at a minimum speed of 45Mbps/sec. But it has failed to generate traction in the marketplace because users are unwilling to pay for bandwidth that they don't need.

Now, AT&T Corp. has quietly begun offering a new option that is 28 times slower than 45Mbps/sec. ATM, or T3, *Computerworld* has learned. It isn't 28 times cheaper, but access charges do drop from \$5,000 a month to \$700 a month, according to AT&T.

Taking over

Dubbed low-speed ATM, the new 1.5Mbps/sec. service is expected to quickly overtake high-speed ATM in total number of ports, according to projections from Vertical Systems Group in Dedham, Mass. And Vertical Systems predicts that by 1998,

Low-speed ATM, page 15



Source: Vertical Systems Group, Dedham, Mass.

Lotus snuggles up to World Wide Web

Notes prices chopped, 'net tools bundled

By Tim Ouellette
CAMBRIDGE, MASS.

Here we go again. In a sequel to Microsoft Corp.'s recent capitulation to an open Internet strategy, Lotus Development Corp. is embracing the Internet with its upcoming Notes

4.0 groupware.

The Cambridge, Mass., division of IBM is also slashing Notes prices — from \$155 to \$69 per client desktop — to keep cheap World Wide Web browsers and servers at bay.

The moves signal yet another win for Sun Microsystems, Inc.'s Java programming language, which will be incorporated into Notes' LotusScript language.

"We've been waiting for this," said Thomas Bridges, a network administrator at the Internal Revenue Service in Austin, Texas. "It lets us leverage our existing Notes installation for developing an internal web."

Lotus has been wrestling with a dilemma. Should it keep Notes separate and distinct from the Web and continue its comparatively high pricing scheme? Or should it take its

Lotus, page 111

Controversy roils over year 2000 conversion toll

By Craig Stedman
PHOENIX

The debate about whether the year 2000 issue is the biggest crisis ever to hit mainframe shops or merely a gold mine for consultants and vendors is boiling once again.

The latest bone of contention: Year 2000 application conversions may put a strain on mainframe CPUs. Or they may not.

Gartner Group, Inc. last week claimed year 2000 projects could be the largest single driver of mainframe shipments during the next few years. Nearly 15% of the System/390 MIPS bought in 1998 will be for year 2000 ca-

pacity needs. The Stamford, Conn.-based consulting firm predicted at its annual data center conference here.

Users need to change mainframe applications so the applications will recognize four-digit year dates and still function after the clock strikes midnight on Dec. 31, 1999. Some users and analysts agree that making this change will require significant jobs of additional CPU power. But many others said Gartner's

Year 2000, page 111

INSIDE

■ Reviewers like the Notes 4.0 interface, but question performance. See page 54.

■ Symantec rolls out a Windows-based graphical development environment for Java. See page 82.

■ A new crop of Internet-enabled help desk tools arrives. See page 68.

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Dec. 18, 1995

News

NEWS

- 2 LAN switching**
LAN switching options are limited.
- 4 Digital database plans**
Digital will move its very large memory database search feature from its high-priced Alpha servers to less-expensive, mid-range models.
- 5 15 others**
IS staffers at the U.S. Postal Service, UPS and other delivery services help meet the holiday crunch.
- 6 Java tool set**
Symantec unveils a tool kit for Java development.
- 10 Smaller Pyramids**
Pyramid unveils a set of departmental and workspace servers, including its first Windows NT machines.
- 12 Web dreams**
Tim Berners-Lee, father of the 5-year-old World Wide Web, lays out his hopes for the Web through the year 2000.

COMPUTER INDUSTRY

- 12 Apple layoffs**
Apple is gearing up for its third company restructuring in the past nine months, but this time layoffs are expected.
- OPINION**
- 16 Return of the Loti**
Lotus surprises a lot of people by sketching out a thoughtful and compelling case for using Notes as a Web back end, Paul Gillin says.
- 17 Holiday humor**
Just once Chris Kinsane would like to get a normal holiday gift, such as a nice sweater, rather than some computer-related trinket such as the "ergonomic mouse soap-on-a-rope."
- 37 IS read map**
Patrick B. Seybold identifies the 15 risks for today's hot "business drivers" — from building customer loyalty to electronic commerce.
- 17 High-end anxiety**
The complexity of high-performance computing must change to become part of the rapidly evolving end-user network, Charles Babcock says.

Christmas shopping on the Web sure ain't all it's cracked up to be,
Paul Gillin points out.
Enterprise Networking, page 58



Choice Cuts



Help desks are underpaid, understaffed and under the gun. We put them under the microscope. Managing, page 81

How far can electricity travel in a nanosecond? 1.8 inches, 10.8 inches or 108 inches? Test your computer trivia IQ. (Oh, and the answer is 10.8 inches.) In Depth, page 89



Technical Sections

DESKTOP COMPUTING

- 45 Closer Look: Contact management.**
These share packages are getting connected.

SITE METERING

- McFee updates its site metering tool.**

WORKGROUP COMPUTING

- 51 Workflow strategies**
Should you design a complete workflow system with a consultant's help before installing software or jump right in by using the workflow software to define your processes? A little dose of each is the best medicine.

SUN'S PC-NFS

- SunSoft enhances PC-NFS so the file-sharing software does the 'net.'**

ENTERPRISE NETWORKING

- 55 SMP for NT**
NetFrame unveils a Windows NT version of its fault-tolerant SMP server for LANs.

COMPUTER TELEPHONY

- Mitsubishi alliances and develops products to make a splash in the computer/telephony market.**

LARGE SYSTEMS

- 61 NetWare on the AS/400**
Running NetWare on the AS/400 may seem like a delusion, but it's about to become reality.

'NET-BASED HELP

- A new crop of Internet-enabled help desk tools lets users serve themselves to information when and how they want it.**

APPLICATION DEVELOPMENT

- 73 PowerBuilder tests**

Powersoft customers test a new version of PowerBuilder.

- 73 Web development tools**
Microsoft, Sun and visual development tool makers are introducing graphical languages for easier development on the World Wide Web.

Features

MANAGING

- 81 FYI**
- 58 Paul Strassmann's Revealing Indicators**
- IN DEPTH**
- 62 Trivia, trivia, trivia . . .**
- CAREERS**
- 74 Eiffel towers**
Knowing Eiffel can give object programmers the competitive edge.
- 76 Dream jobs?**
Saying yes to that IS dream job depends on some key realities.

Etc.

Calendar	85
Company Index	108
Editorial/Letters	36, 41
Inside Lines	122
Dec. 15 Stock Ticker	109
How to contact CW	108



Centralization is back, according to a recent study by The Research Board. This week's Leadership Series author, Ernest M. von Simson, explains why and describes the shape of the new information technology organization.
Following page 32

Switching LANdscape hit-and-miss

Users impatient with vendors' delay in shipping LAN switches

By Bob Wallace and Laura DiDio

December 1993. John Dubiet leans open his package from Bay Networks, Inc., with great anticipation, ready to lay eyes on his new LAN switching hubs.

Imagine his surprise and dismay when he pulls out an empty nest of modules with no LAN switching modules inside.

"We just laughed at it and wondered how much Bay rival Cabletron would pay for a photo of the empty chassis," the network and technology planning manager in Boston Edison Co. said.

Fast forward two years to this month. The long and repeatedly postponed LAN switching modules haven't arrived — although Billerica, Mass.-based Bay did send Dubiet a free car package with lower-end stackable switching hubs.

Patched promise
Dubiet's story illustrates the reality of the LAN switching market, where promises and hope often cloud the view of the landscape. Vendors break promises and products ship late. And sometimes, lower-end switches don't stick up.

So users looking to soup up the

performance of their enterprise internetworks next year by deploying high-end LAN switching hubs will find their choices limited.

The allure of LAN switching is its promise to change the way users build internetworks. It provides the ability to replace shared LAN capacity with bigger, dedicated pipes to each desktop. It also eliminates bandwidth bottlenecks in backbone networks.

Slow race

In the vendor race to provide these capabilities, Cisco Systems, Inc., now offers limited LAN switching, while 3Com Corp. and Cabletron Systems, Inc., are further along in shipping more versatile high-end LAN switching hubs.

Analysts warn that switch vendors that are late to market risk being left behind because the market has become a commodity.

"The technology leapfrogs it self in a matter of months. This creates great opportunities for those who can deliver," said Charlie Robbins, president of Aberdeen Group, Inc. in Boston. "Vendors who lag behind could find themselves out of the game."

By Mindy Blodgett

When Jack Frame went looking for a sales force automation program, he didn't begin by consulting his company's information systems department.

Frame, vice president of marketing at Corestates Financial Group Corp., has now rolled out notebooks to more than 300 marketers. He has yet to discuss the program with an IS manager.

"I don't even know who I would talk to," said Frame, who said he was a computer neophyte before tackling the project.

Frame is one example of how IT seems to be getting cut out of one of the hottest parts of client/server computing: sales force automation. Users and analysts say sales forces are increasingly imple-

menting technology themselves, bypassing the IS department. Many sales force automation vendors say they no longer pitch projects to IS executives, preferring to go directly to the sales group.

Shift in queries

On the flip side, "just about every sales query we get now is from a salesperson," said Tracy Kinsey, director of new business consulting at Ehsa Software, Inc., in Pacific Palisades, Calif. Ehsa makes sales software called Goldmine. Kinsey said inquiries from salespeople represent a marked shift from even a year ago.

Why is IS getting shut out of these projects?

"The general feeling is that the MIS department will take too long to evaluate and implement any

That's a switch			
Switch/Number of slots	Maximum ports supported per switch	Switched Ethernet	Switched Token Ring
Cisco Catalyst 5000S Slots: 5	96	Won't support until Q2 1996	1
3Com LANplex 6000 Slots: 12	176	88	5
Cabletron MMAC-Plus Slots: 14	336	Won't support until Q3 1996	2B
Bay System 5000 Slots: 14	Will support in second half of 1996	Will support in second half of 1996	Will support in second half of 1996

Sources: Cisco Systems, Inc.; San Jose, Calif.; 3Com Corp.; Santa Clara, Calif.; Cabletron Systems, Inc., Rochester, N.Y.; and Bay Networks, Inc., Billerica, Mass.

The former SynOptics Communications, Inc. — now half of Bay after its merger with Wellfleet Communications, Inc. in 1994 — announced its System 5000 enterprise switching hub in August 1993.

The vendor promised LAN switching modules by the end of that year.

But following a series of delays, Bay last week admitted that it won't ship these modules until the second half of next year. The vendor is having problems with application-specific integrated circuits needed for the System 5000 to perform switching.

Cisco is playing catch-up. The

vendor announced the Catalyst 5000 switching hub that past March, with Ethernet and Fiber Distributed Data Interface (FDDI) switching modules due last summer. Cisco is shipping an Ethernet model.

Running late
And although Cisco has promised a Token Ring switching module by early next year, a company spokeswoman said last week that the module will be late.

Also, the FDDI switching modules set to ship in July weren't released until sometime in October.

Only 3Com's LANplex 6000

hub currently offers Ethernet, Token Ring and FDDI LAN switching. Cabletron offers Ethernet and FDDI switching but is mulling its options for adding Token Ring switching for its MMAC-Plus.

One user is standing pat with his Cabletron MMAC-Plus switches.

John Scoggin, supervisor of network operations at Delmarva Power & Light Co. in Newark, Del., said the utility is getting superior throughput and capacity from its current crop of switches and Cabletron's new Smart-Switch.

"My criteria for buying a switch is that it's equipped with enough capacity to last us five years," Scoggin said. "Otherwise, it's no sale."

G Cisco introduces multifunction routers. See page 55.

A trend is born: IS cut out of sales automation projects

[sales force automation] solution, bypassing the IS department. Many sales force automation vendors say they no longer pitch projects to IS executives, preferring to go directly to the sales group.

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Why is IS getting shut out of these projects?

"The general feeling is that the MIS department will take too long to evaluate and implement any

going out over the laptop." The two staffs are also often at cross-purposes, Close said. IS wants to maintain standards and control

departments. Close said, "Sales wants to increase sales and motivate and spend the money to do that."

Not for all
While the sales-only automation project concept works well for some companies, it spills disaster for others. "If a project is exclusively by the sales staff, it often fails," Close said.

"And if the information technology staff drives it completely, it fails because they

don't understand the business needs of the sales model. You really need both departments to work together."

Peter Keers, sales and marketing information manager at St. Jude Medical, Inc. in St. Paul, Minn., said the reason his department drove its sales project — it now uses SalesKit Software Corp.'s SalesKit Open product — was control.

"Primarily, we wanted to make sure that our needs were met up front," Keers said.

He said, however, that he did eventually work with his company's IS department to ensure compatibility and easy implementation.

G Take a Closer Look at contact management. See page 45.

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DEC brings database tool to midsize boxes

Very Large Memory speeds searches

By Jean S. Bozman
PALO ALTO, CALIF.

Digital Equipment Corp. plans to move its 64-bit Very Large Memory (VLM) database-search capability from high-priced Unix servers to midrange models.

The company said here last week that the move, from the Alpha Server 8400 line to the Alpha 2100 family, is planned for spring. It will result in low-cost data warehouses for business units that can't afford a 12-CPU superserver priced at \$1 million or more.

Using VLM, the 64-bit Digital Unix operating system can ad-

dress hundreds of gigabytes of main memory. Digital officials said that far outstrips the 2G-byte limit of most 32-bit machines and today's 64-bit 2100s without VLM. Direct main memory searches take a fraction of the time needed to search data that otherwise must be retrieved from hard disk drives.

Vendors added

Digital's VLM support already works with Oracle Corp. databases. Now, Digital is working with Sybase, Inc., Informix Software, Inc. and Software AG to offer the same VLM support.

Digital will outfit the Alpha 2100 servers with a new cabinet and with "at least several times" the current 2G-byte main memory capacity, but in the same price range as the 2100 line, a Digital spokesman said. The 2100 servers now cost \$20,000 to \$40,000.

Many 2100s could be used together if a parallel database were used, analysts said. "I can have a network of 2100s, with part of that memory being used for [online transaction processing] and part being used for replication," said Peter Kastner, an analyst at Abberdeen Group, Inc. in Boston. "And because I'm not using up the disk drives I'm freeing up resources."

Baxter Healthcare Corp. al-

Quick work of it

Digital's VLM feature allows the 64-bit Digital Unix operating system to scan through multidimensional data bases quickly. Working first with Oracle Corp. databases, VLM puts more than 2G bytes of data directly into main memory — something 32-bit machines can't do.

readies an Alpha 8400 server with VLM for the Oracle data warehouse of 150G bytes. The company plans to bring two more 8400s on-line next year, according to Neal Ebert, director of technology at Baxter's McGraw Park, Ill.

campus outside Chicago. The same site also has seven 2100s.

"You could use more small ones at a lower price than buying the same number of processors in bigger machines," Ebert said.

Digital's Unix server rivals aren't sitting still. Hewlett-Packard Co. and Sun Microsystems, Inc. are expected to field 64-bit servers next year, and HP plans to have a 64-bit operating system next year.

Still, Digital has the edge — for a while. "I would say it's probably 18 months to two years before the other guys catch up," said Jay Breitman, director of worldwide systems research at International Data Corp. in Framingham, Mass.

Ready or not, Win 95 II

Microsoft already planning system successor; users yawn

By Stuart J. Johnson

Windows 95 is barely out the door, but Microsoft Corp. is already looking at the next release. And some users couldn't care less.

The next release of Windows 95, code-named Nashville, will address four broad technology areas, said Russ Stockdale, group product manager in the company's Personal Systems Division (see chart).

While no official ship date has been set, Microsoft executives wouldn't rule out releasing the upgrade by late next year.

Some observers said they doubt the company can get it out that quickly.

Jumping the gun

Meanwhile, some users are wondering about the timing.

"I can't imagine it being very useful [if Nashville] ships late next year," said Bill Carrigan, technology adviser at Pacific Enterprises Corp., the parent company of Southern California Gas Co. in Los Angeles.

"We've just gotten to the point where we've just about got a plan" to deploy Windows 95, Carrigan said.

"When I look over my organization, we've deployed Windows 95 and Office 95, and now I'm going to push them to Exchange Server," said Greg Scott.

He is information services manager at the college of business at Oregon State University in Corvallis.

"My feeling is after I make the

move to Exchange, we need time to assimilate what we've deployed," Scott added.

Some users and press reports about Nashville have confused its features with the Windows 95 Service Pack, which is due out in the first quarter next year.

soh couldn't locate the server that included the code.

The Service Pack will include new drivers and minor bug fixes.

Other features, such as the one-button access to the Internet that Microsoft Chairman Bill Gates described earlier this month, will

Grand 'ole OS

Microsoft hopes to extend Windows 95 in four main areas with its next release, code-named Nashville:

- **Improved Internet integration**
One-button access to the Internet from the user interface
- **Expanded multimedia support**
Support for DirectX 2.0, QuickTime and other emerging multimedia standards
- **Improved communications features**
Data conferencing capabilities, which would let multiple users work together simultaneously
- **Addressing changes in the hardware platform**
As PC vendors change the hardware, Windows 95 will change with it

And despite the fact that company officials have said repeatedly that there won't be a product named Windows 96, users have adopted the name when referring to Nashville.

Beta hi-links

Further complicating the picture are reports in recent weeks that someone, possibly a disgruntled Microsoft employee, has posted a copy of prealpha Nashville code on the Internet.

However, while there was some message activity about it on the Internet last week, even Micro-

softly came out as a Windows 95 add-on and be incorporated into Nashville later, sources said [CW, Dec. 11].

It also will likely include operating system support for "data conferencing," which is the ability to let two or more users work on and view the same document simultaneously over the Internet.

That add-on also is likely he incorporated into the Nashville release.

And Windows will continue to evolve to support changes in the underlying hardware, Stockdale said.

Must-see TV: NBC, Microsoft team up

By Mitch Wagner and Stuart J. Johnson

Microsoft and NBC are hoping to deliver a one-two punch to consumers with their joint cable TV news station and Internet-based on-line service.

The companies expect to combine the mass appeal of a 24-hour news station with the virtually unlimited capacity for additional information offered by the Internet.

"This is one giant leap for electronic journalism into the next century," NBC News President Andy Lack said last week.

The two firms plan to launch the venture — which has the working name "MSNBC" — several months from now. The cable TV component will be based on NBC's America's Talking cable network, which has 20 million subscribers. The on-line version will be delivered through The Microsoft Network and the Internet.

MSNBC will be far from the only news service available on-line. All the on-line services offer head-line news. There are more than 300 newspapers on the Internet, from *The New York Times* and *USA Today* to the Sydney, Australia, *Morning Herald*.

Microsoft Corp. hopes to use the cable TV station to boost the on-line service.

Throughout broadcasts on the television portion of MSNBC, electronic addresses will be shown on-screen to tell viewers where to go on-line to get more information about the story being

NBC and Microsoft on-line and on the air

- Microsoft buys \$225 million half-stake in NBC's America's Talking cable channel.
- NBC and Microsoft each will spend \$100 million launching the joint venture.
- Delivered on cable, the Internet and The Microsoft Network.

broadcast. How the companies will make money on this still is unclear.

Microsoft Chairman Bill Gates, reached in Hong Kong last week, said his company didn't expect to make money at this for at least five or six years.

"The most important part of the game is to make sure you have a high market share and high mind-share of the users," said Peter Neupert, vice president for strategic partnerships at Microsoft. "If you don't do that, it doesn't matter if you've got subscriptions or not."

The two companies will cooperate in managing the on-line network and NBC will be in charge of the news content. The on-line service initially will not provide much video content because of the bandwidth supported by current telephone line technology, only 14.4 Kbit/sec. or 28.8 Kbit/sec. That will change as cable modems phase in, officials said.

Correspondent Dee Tessman of Computerworld Hong Kong contributed to this report.

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Christmas crunch

IS staff, networks strain to get those billions of packages delivered

By Patrick Dryden

Santa's helpers can rent a bit easier during the hectic holiday season. Information systems staffers at various package delivery services are taking extra care to monitor the annual onslaught of bills, tons of cards, catalogs and packages.

IS folks, in turn, rely heavily on pre-planning to make sure Santa doesn't bypass any houses. The U.S. Postal Service gets ready in August, which is when its seasonal load kicks in. Retailers, direct marketers and catalog vendors mail more than a billion pieces each week from then through October.

The Postal Service expects to deliver 99.9 million packages this month. The daily load jumps 50% for United Parcel Service, Inc.; on peak days, UPS delivers 18 million packages. FedEx Corporation trails behind, handling more than 3 million deliveries each day during the two weeks before Christmas.

How bad does it get? Today, the Postal Service will handle about 250 million greeting cards, letters and gifts.

That means extra pressure to keep the network going, said Dus McPhilips, telecommunications program manager at the Postal Service. His group monitors the system via SMS, dis-

tributed network management software from Cabletron Systems, Inc.

"We tend to be even more proactive than normal to keep things rolling," McPhilips said. "A network outage that affects mail processing doesn't impact us as much as June as it does now, when we're handling such high volume."

Go with the flow

His group is responsible for a national SNA and TCP/IP network that links 220 Postal Service sites and data centers and more than 80 major mail customers to a central command center. Staff running the Network Operations Management System analyze mail flowing through the Postal Service's \$3.2 billion transportation network.

The Postal Service has adopted a management system, an internally developed logistics application for monitoring mail flow, to keep up with service demands year-round.

Last year, the Postal Service expand-

ed the seasonal holiday network — central traffic coordination of an extra 116 airplanes and other transportation for Priority Mail delivery — to improve service levels, said Patrick Mendonca,

here for analysis, reporting and a single point of contact, so we know how we're doing."

The Postal Service command center operates around the clock during the holiday season. On-site IS engineers coordinate any additional technical needs and problem resolution, and key vendors are on hand during the weeks before Christmas to ensure that no downtime disrupts deliveries, said Tom Hutchinson, operations specialist.

"The hardest task is ensuring that the communication networks remain up, so we have all the information at the command center stations," Hutchinson said.

At rival UPS, the IS groups freeze their systems and applications from Thanksgiving through year's end.

IS staffers who are normally involved in development and implementation help monitor the increased network traffic and the queues that report package-handling data from remote sites.

During the two-week crush before Christmas, up to 150 UPS programmers, systems engineers and network managers even don delivery uniforms as part of an annual volunteer program.

"They get their hands on boxes to appreciate how our core business grows during the holidays," said Glyn Holmstrom, human resources manager at UPS's information services unit. The operations side appreciates every bit of help, and the IS folks get a feel for how UPS makes money," he said.



performance analysis manager in charge of the Postal Service national command center in Washington.

"Now we monitor all transportation, specific large accounts year-round for a better focus," Mendonca said. "All information systems feed

just wouldn't get delivered."

When the CD or cassette that customers want isn't on the shelf, they go elsewhere. And because music retailers do up to a quarter of their annual business during the holiday season, those losses hurt.

Obereschlak supervised rewriting the source code of the company's order-processing system, which is from Alpha & Omega Integrated Control Systems, Inc. in Pittsburgh, to allow multiple orders to be processed at once. That change alone doubled the system's speed. Tuning the application further added 35% more efficiency.

Another 10% improvement was gained by moving to Version 7.0 of Oracle Corp.'s relational database management system from Version 6.13.

Topping off the changes was the company's decision to make fuller use of Database Accelerator, a SCSI box with a 1G-byte pool of memory from Database Acceleration Systems, Inc. in Santa Clara, Calif. The RDBMS treats Database Accelerator as a disk, but its use imposes virtually

none of the I/O delays associated with disk access, Obereschlak said.

The work done to prepare Camelot Music's inventory system required 7,500 hours' work by staffers and consultants. At an average of \$40 an hour, that means the project cost \$300,000 in labor. The disk accelerator cost \$64,000 and was the only additional cost.

Transparent upgrade

Camelot uses a six-processor Hewlett-Packard Co. HP 9000 with 1.25G bytes of memory. Its 350-table Oracle database consumes 60G bytes and is accessed by about 50 users at a time.

By November, order processing could be accomplished in eight hours, a savings of 54%. "The stores don't notice any difference, and they won't. That's the point," Marsh said.

Now, the North Canton, Ohio, chain is far more likely to have in stock for Christmas just the music you want. Garth Brooks' *Fresh Horses*, *The Beatles Anthology* or the digitally mastered CD single of "Grandma Got Run Over By A Reindeer."

Bells will jingle after all

Music retailer uses systems strategy to get songs on shelves for holiday rush

By Dan Richman

Alvin and the Chipmunks caroling, "Rudolph the Red-Nosed Reindeer MaMa," became celebrating Christmas without those and other musical favorites.

Information technology executives at Camelot Music, Inc., a privately held chain of 402 recorded-music stores throughout 37 states, imagined just that scenario. And they feared the lumps of coal customers would leave in their corporate stocking if they couldn't find the new and traditional music they wanted for the holiday season.

"Let's just say it would not have been a holy jolly Christmas," said Charlie Marsh, chief information officer at the chain.

In June, Marsh and other executives leapt from their beds to see what was the matter with

their distribution system.

Needy arrived systems manager Tim Obereschlak projected that holiday demand would swell



Information technology saves at Camelot Music, including systems manager Tim Obereschlak (far right), will use an HP 9000 T560 with a solid-state disk unit to meet the holiday rush.



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News

News Shorts

Espresso brews up Java apps

By Frank Hayes

Java may be an advanced programming language for building software — and the hot ticket on the World Wide Web these days — but the tools for using it are nothing short of primitive.

Enter Symantec Corp., which last week unveiled a Windows-based Java development tool set that it hopes will close the gap between Java's technology and its tools.

Symantec's Espresso is the first Java programming product that resembles the integrated development environment of a commercial language such as C++, according to officials at the Cupertino, Calif., company.

Programs written in Java, which was created by Sun Microsystems, Inc., are designed to be downloaded from a network and run unchanged on PCs, Macintoshes and Unix workstations. But currently, Java is available only in a beta-test version, with development tools not quite ready for prime time.

"What [Sun] has put out so far is really just the very basics," said Mark Shirley, a researcher at Xerox Corp.'s Palo Alto Research Center in Palo Alto, Calif. "You edit code with your own editor and then run it through a compiler. It's very primitive."

To make a more advanced development environment available quickly, Symantec created Espresso by adding a set of Java development extensions to Symantec's C++ development system. Espresso integrates the Java compiler from Sun's development kit with

the class browser, project management system and other tools from Symantec C++ 7.2.

The marriage of Java with C++ tools is a little ironic to some users because "Sun is promoting Java will take the place of C++," said Musa Khor, a systems and network administrator at Raychem Corp., a chemical and materials company in Menlo Park, Calif.

However, Espresso doesn't mix Java and C++. The Java compiler simply replaces the C++ version, Symantec officials said.

Symantec's development environment can parse Java source code on the fly, so developers can view the Java program's class structure and edit methods, data and classes.

Espresso can also automatically generate skeleton applications that can be extended with additional Java code, and it includes tools for managing development projects and subprojects.

As a result, it should be easier for PC developers to get started with Java using Espresso than with the limited tools Sun supplies.

Espresso is available now as a free add-on to Symantec C++ 7.2 for Windows 95 and Windows NT, which costs \$399. Current Symantec C++ 7.2 users can download a set of patches to add the Java support from Symantec's Web site at www.symantec.com.

Symantec's quick splicing of a Java compiler with its own development environment may not be as robust as future offerings from other vendors.

Sun hasn't said what commercial tools it will offer for Java development. Borland International, Inc. last month announced a Java development system, code-named Latte, which it will roll out in stages during the next 18 months.

But any improvement "is a step up from what Sun puts out today," Shirley said. "It'd be a big help over what they have right now."



With Symantec's Espresso development environment, Java programmers now have integrated project management capabilities.

COMPUTERWORLD DECEMBER 18, 1995

Oracle gets groupware

Oracle Corp. has announced InterOffice Suite, a family of client/server products. The groupware portion, code-named Pegasus, is based on Oracle7 and will offer users electronic mail, calendaring/scheduling, document management, workflow and access to the World Wide Web. The Windows NT- and Solaris-for-Intel-based suite, formerly known as Bandwagon [CW, Nov. 27], also provides centralized application distribution and database administration. The Enterprise version supports 40 users and lists for \$14,995. The Workgroup version, with fewer database features and support for 25 users, will cost \$2,995. It is scheduled to ship by July 1.

Internet object standard promised

IBM, Microsoft Corp., Netscape Communications Corp. and Spyglass, Inc. last week announced that they plan to create a common way to insert live objects into World Wide Web documents.

The pact was unveiled at a meeting in Boston of the World Wide Web Consortium, a group of universities and vendors that manages standards for the graphical Internet service [see story, page 12]. The common object format would, in part, let the same object be made available in Sun Microsystems, Inc.'s Java programming language or Microsoft's OLE technology.

Two-way paging

Two-way pagers from SkyTel Corp. in Washington are available now in retail outlets nationwide. SkyTel pagers will be sold through stores such as Staples and Office Depot. Prices will start at about \$49.95; prepaid service prices will start at \$20.95 for two-way service.

Making new Smalldtalk

ParcPlace-Digital, Inc. in Sunnyvale, Calif., this week will begin shipping Visual Smalldtalk Enterprise (VSE) 3.1. With the new release, VSE is fully compliant with Windows 95 logo and matches current standards for the Smalldtalk language. VSE 3.1 also is compatible with its sister product, VisualWorks 2.5. VSE costs \$4,995; an entry-level version is \$1,695.

IBM kills off OS/2 app

IBM confirmed that it is dropping IMS Client Server/2, software that lets OS/2-based PCs get at mainframe data via the company's IMS transaction manager. IMS Client Server/2 sold poorly and won't be directly replaced. A Windows version is still available but has less than 15 users, analysts said.

SmartData debuts

Intersolv, Inc. in Rockville, Md., recently announced Data Direct SmartData, a product that lets users of any ODBC Database Connectivity-compliant tool view plain-English tables without access data from multiple tables without performing joins. The product costs \$199.

Agent software from FTP

FTP Software, Inc. in Andover, Mass., recently unveiled a development kit for building Intelligent agents on a network. The CyberAgent Software Development Kit includes a scripting language, debugging tools and sample source code for building software agents to manage networks, augment applications and exploit the Internet, the company said. The \$495 CyberAgent kit runs on Windows and Windows 95. It will be available by mid-January.

Year 2000 conversion service

Peritus Software Services, Inc. in Billerica, Mass., has introduced Automate-2000, a service designed to help organizations ready their computer programs for use beyond the year 2000.

IBM, Reuters unveil ticker tape-style Internet news

IBM last week launched InfoMarket NewsTicker, the first in a series of free, near-real-time news feeds for Internet users. The service provides current events from Reuters NewMedia, Inc. in New York. News appears in the form of a ticker, with advertisements that scroll across the bottom of a PC screen. Users can download the required software from <http://www.infomkt.ibm.com>.



T1ships Windows tool set

Texas Instruments, Inc. in Plano, Texas, last week began shipping Arranger 1.1, a new version of its Windows-based tool set for assembling applications from software components. The release lets developers use PowerBuilder to build front-end programs for applications generated by TI's Composer client/server development system. A single-user version of Arranger 1.1 costs \$495; the enterprise version is \$2,495.

Sequent aims at Web servers

Sequent Computer Systems, Inc. now has a program to market Open Market, Inc.'s WebServer software on its Symmetry symmetric multiprocessing systems. The program targets large companies looking for high-performance World Wide Web servers. Sequent in Beaverton, Ore., and Cambridge, Mass.-based Open Market said they demonstrated a system that handles 5,000 simultaneous modem connections.

SHORT TAKES Sybase, Inc. last week sent Version 11 of its SQL Server relational database management system to manufacturing. It is due out Jan. 1. IBM's AIX, Sun's Solaris and Hewlett-Packard Co.'s HP-UX and by March 1 for Windows NT and Digital's Unix... Sabre Interactive, an American Airlines business unit, this week will announce that it is testing Travelocity, an Internet site due in March that is tied to American's Sabre reservations system.... Black & Decker Corp. in Towson, Md., agreed to sell its PRC, Inc. information technology services unit to Littleton Industries of Woodland Hills, Calif., for \$425 million.... SQA, Inc. in Woburn, Mass., has shipped LoadTest 4.0, a new version of the system for stress-testing Windows client/server applications.... Hewlett-Packard Co. has announced a new version of its SelfCheck 5.0 C++ development workbench designed to reduce the complexity of C++ development.

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Servers give new shape to Pyramid line

By Michael Goldberg

Enterprise systems vendor Pyramid Technology Corp. last week unveiled a set of midrange and low-end servers, including the company's first Windows NT-based machines.

The servers from Pyramid and its parent, Siemens Nixdorf Informationssysteme AG, include the uniprocessor RM 300C workstation and departmental symmetrical multiprocessing (SMP) boxes.

The SMP servers include the RM 300C and RM 400C, which scale from one to four

processors (see chart). The systems run on Windows NT or Unix; Pyramid's version of Unix. They use MIPS Technologies, Inc. R4400 microprocessors.

Users and analysts said the machines give users a new entry point to Pyramid's product line. It is also important, observers

said, that the offerings are compatible with the firm's higher-end Nile SMP and massively parallel Reliant RM 1000 computers. "That sounds like a good idea," said Eric Usroh, vice president of MIS at Forte Hotels, Inc., in San Diego, which uses older Pyramid hardware as a platform for its res-

EcoTOOLS



Base of the Pyramid

Pyramid is offering new midrange and low-end computers that use MIPS Technologies processors and run on Unix or Windows NT.

MACHINE	NUMBER OF PROCESSORS	AVERAGE TYPE OF MACHINE	PRICE
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RM 300C	1- or 2-processor SMP server	\$35,000
---------	------------------------------	----------

ervations system. If someone wanted to get into a data warehousing project "in a small way, you might use this rather than starting off with a larger system. It could be more cost-effective," Usroh said.

Rod Merry, director of application development at Damick International, Inc., a direct marketing firm in Minneapolis, said a Pyramid midrange server would let him do development work on a Unix-based system that is binary-compatible with his company's set of Nile servers. This would be more productive than using another brand of Unix, which would require him to recompile his applications to use them on Pyramid machines, Merry said.

S. Rajev, director of product marketing at San Jose, Calif.-based Pyramid, said the company is offering clustering technology with the servers as well as on-line replaceable disk drives. Typically, these features are included in high-end systems.

Pyramid's new servers place the company in direct competition with midrange hardware vendors such as Hewlett-Packard Co., Digital Equipment Corp. and IBM.

Bob Sakakemy, an analyst at Aberdeen Group, Inc. in Boston, said Pyramid's adoption of some large-machine features in midrange and low-end systems is good news for prospective users. "The Pyramid/Siemens Nixdorf people offer some pretty powerful systems for folks who need good database servers. They link up fairly well with the high end," he said.

Moving up

Although they wouldn't give an expected release date, Pyramid officials said they plan to optimize their servers to operate with 64-bit MIPS Technologies processors. This is currently a 32-bit operating system.

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NetFame's fault-tolerant servers now run Windows NT. See page 55.

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Digital cranks up Web searches

By Michael Goldberg

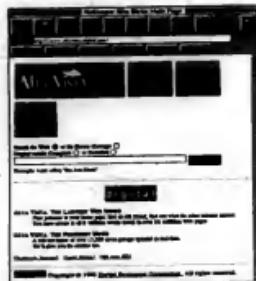
Digital Equipment Corp. last week opened up a new World Wide Web search engine the company said can index up to 2½ million Web pages daily.

Digital's Alta Vista Web site, <http://www.alta Vista.digital.com>, uses searching and indexing algorithms in software that runs

match key words or phrases sought by a user.

The software isn't for sale, but Digital officials are demonstrating it to major database companies with an eye toward applications that let corporations with many internal Web sites index pages. The software runs on 64-bit Digital hardware and lower-end and mid-range Alpha servers, Looney said.

Digital's search engine is "blindingly fast," said Greg Cline, director of network integration and management research at Business Research Group in Newton, Mass. "The initial use will probably be on the global Internet simply because the problem that spider technology solves is the massive task of indexing a very large body of



Digital's Alta Vista search engine can index huge amounts of data from Web pages

on a Digital high-end Turbolaser server at the company's Corporate Research Center in Palo Alto, Calif.

Mike Looney, director of business development at the research center, said the "super spider software" sends parallel queries on the Internet to seek references on Web pages and news groups that

data." Cline said. "There are so many Web pages coming on-line so fast that current technology has a hard time keeping pace with new entries. This technology! can meet this problem head on," he said.

See updates PC-NFS, See page 55.

News

Father of Web asks for far-reaching standards

By Kim S. Nash
BOSTON

At this time five years ago, the World Wide Web was born, and Tim Berners-Lee was the proud parent.

Now chairman of MIT's Laboratory for Computer Science, Berners-Lee created the graphical Internet service that today boasts an estimated 18 million regular users.

Last week, he set forth his wish list for the Web's next five years to the 2,000-plus attendees of The World Wide Web Consortium conference here.

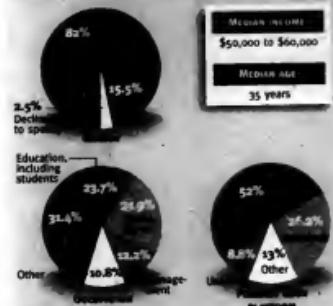
He stopped short of saying he was disappointed in today's Web, but Berners-Lee lamented its shortcomings. For example, Microsoft Corp., Netscape Communications Corp. and other browser makers have confused and fragmented their revisions to HyperText Markup Language, the mother tongue of the Web.

Future thoughts

The more critical Web improvements Berners-Lee said he hopes to see by the turn of the century include the following:

- A means of user verification. Missing from Email and Web forms transmitted over the Internet is a reliable way to authenticate who created and sent a given document. Encryption and other security methods must be built in to Web utilities to do this, he said.
- Invisible browsers. Rather than launch a separate application for looking at the Web, users would have browser-like functions built into everyday PC software.

So who's out there anyway?
The following results are from a recent survey of Web users. Full results are available at http://www.cc.gatech.edu/gvu/user_surveys/



Source: *World Wide Web Consortium*, Cambridge, Mass.

can be programmed to perform routine tasks for their masters, such as fetching sports scores and stock quotes from the Internet or other electronic sources.

These agents should also be able to "do real work," such as search for, sort and interpret specified information.

"We're on the edge of all this," Berners-Lee added. But, he told the audience of Web developers and users, making it real "depends on you folks."

Holiday shopping on the 'net.'
See page 58.

Bundled network analysis eases client/server woes

By Patrick Dryden

Bay Networks, Inc. and Concord Communications, Inc. will team up this week to help administrators of client/server environments monitor the performance of networks and applications.

Concord's Network Health software will be able to gather and examine network activity using the Advanced Analyzer monitoring card embedded in Bay Network's interworking gear.

The partnership can save Bay Networks users the cost and hassle of installing external probes to check key segments. It also lets them track communications be-

yond bridges or switches by peeling into each packet's network-layer addressing. That capability helps administrators track application responsiveness for users and charge for client/server services.

"This helps our network management design goal of maximum coverage with limited resources," said T. X. Ho, a senior communications engineer at Chevron Information Technology Co. in San Ramon, Calif.

He beta-tested enhancements to both product lines — which are slated to be delivered in the first quarter of next year — for analy-

ing client access to four segments that house vital servers. With the right agent firmware on a hub, Ho could remove Concord's probes and still track which clients most heavily used the servers.

Ho said the cost of upgrading Bay Networks hubs will be substantially less than the cost of increasing the number of Concord probes now installed on 200 segments. The Bay Networks hubs also will take less time to configure, he said. So while he as expands network monitoring, he prefers to use embedded agents on hubs and to redeploy probes to check network applications.

Cost and quantity

Concord's Network Health for LAN/WAN starts at \$9,995. The upcoming Bay Dialogs option for network-layer monitoring of Bay Networks agents will start at \$14,995 for 25 interfaces. Applications-layer reporting will follow in the second quarter of next year.

Concord also plans to support diverse agents and probes when those vendors match the Rimon 2 standard, said Kevin Conklin, vice president of the Marlboro, Mass., company. "The advantage with Bay is early and broad coverage because we expect some nonstop development for a while," he said.

Bay Networks claims about half the Rimon agent market after shipping more than 250,000 Advanced Analyzers, according to Rob Romero, Bay's business development manager for network management. But less than half of the agents already installed support full Rimon reporting, as they will need to be upgraded.

"Do I have to drag a wire all over my warehouse
just to keep my notebook in the network?"



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News

Windows standard goes 'public'

Microsoft fights move, but group votes for new API

By Frank Hayes

Despite opposition by Microsoft Corp., a European standards organization has established a formal definition of Windows that is outside of Microsoft's direct control.

The European Computer Manufacturers Association (ECMA) voted to ratify the Applications Programming Interface for Windows (API-W) standard last week at its meeting in Nice, France. The ECMA plans to forward the new standard to the International Standards Organization (ISO), which could vote to make it a formal international standard.

API-W supporters, including Sun Microsystems, Inc., IBM and

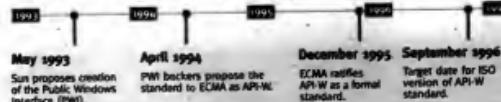
Hewlett-Packard Co., say the standard will give users and other vendors a voice in the future direction of Windows, which is now under Microsoft's tight control. It isn't clear when, if ever, the ECMA's decision will affect U.S. users.

But if the ISO adopts API-W as a standard, Microsoft could feel its effects on the desktop applications and operating systems it sells to the federal government. Formal standards from the ISO are used by many governments, including the U.S. government, to specify information technology purchases.

If government purchasers require their PC applications and operating systems to match the API-W standard, it could severely limit Microsoft's ability to change the way Windows functions work or to develop applications that use undocumented Windows functions.

Slow road to a public Windows

Sun Microsystems and other vendors have worked since early 1993 to make the Microsoft Windows programming interface an independent standard



For now, though, API-W isn't on the radar screens of U.S. government standards experts.

Wait and see

"It could be important, but we probably aren't really going to know until well after the fact whether it will make a difference," said Roger Martin, who tracks formal standards at the U.S. Commerce Department's National Institute of Standards and Technology (NIST) in Gaithersburg, Md. NIST, which sets standards for federal information technology purchases, will begin looking seriously at API-W when

it comes up for consideration as an international ISO standard.

"It'll be a while before it has an implication," said Gordon Eubanks, CEO of Symantec Corp. in Cupertino, Calif. "If a customer gets benefit from it, it could be valuable. But it looks like it's aimed at trying to impact Microsoft."

Microsoft, which hasn't lobbied against API-W since Sun first proposed it in May 1993, Microsoft executives have described the standard as silly, unnecessary and a desperation move by San, IBM, Novell, Inc. and other API-W backers.

But just before the vote, a Microsoft representative took a different tack, claiming that the API-W standard violated Microsoft's intellectual property rights, sources at the meeting said.

ECMA officials invited Microsoft to examine the API-W specification and identify any errors in the specification within the next two months.

Microsoft representatives weren't available to comment on the vote.

Web scripting languages become a battleground. See page 73.



Symantec's Gordon Eubanks says the standard is aimed at Microsoft

Oracle lures in D&B users with price cuts

By Julia King

First there was Crazy Eddie and Publishers Clearinghouse. Now Oracle Corp. is offering up to a \$500,000 price break to companies that switch from mainframe-based Dun & Bradstreet software to its client/server applications.

Check your mail for details.

The offer, which begins this week and is good until the end of April, lets users continue using D&B Software's mainframe software as they migrate gradually to Oracle applications and databases.

"We don't expect anyone to go cold turkey," said Zach Taylor, vice president of marketing for applications.

Oracle is also knocking off 20% from the price of gateway products that let users run mainframe and Oracle databases simultaneously, he said.

On new Oracle applications, customers will receive a discount

equal to 50% of the original purchase price of their D&B Software or 6.5 times the cost of current support fees.

This isn't the first time the Redwood Shores, Calif., vendor has gone the discount route. Oracle offered a similar deal to former users of Computer Associates International, Inc.'s CA Ingres database, which resulted in 20 to 30 conversions, Taylor said.

But this kind of deal is quite uncommon in the applications market, said Jack Maynard, an analyst at Aberdeen Group, Inc.

The customers Oracle seeks to reel in are the approximately 1,150 companies that run D&B Software's mainframe-based Advanced Manufacturing and Production System, or AMAPS.

D&B Software in Atlanta offers a suite of client/server applications known as SmartStream, but this software runs only on Sybase, Inc. relational databases.

AT&T cuts the cord on Vistium; users cry foul

Desktop videoconferencing product part of trade-in deal now

By Neal Weinberg

After pulling the plug on its Vistium desktop videoconferencing product, AT&T Corp. is now offering a trade-in deal that allows users to replace their units with models from PictureTel Corp. and Intel Corp.

Vistium was a victim of a reorganization at AT&T Global Information Solutions, the Dayton, Ohio-based computer company that will be spun off when AT&T splits into three separate entities next year.

When AT&T GIS announced that tall it would no longer make its own PCs, Vistium, which was marketed with the Globalist line of PCs, also fell by the wayside.

"They left us hold-

ing the bag here," said Martha Gorman, manager of the research institute and telemedicine at Bassett Healthcare in Cooperstown, N.Y.

"One of the reasons we went with AT&T in the first place was to avoid this type of problem," added Gorman, who said she isn't sure if Bassett will take advantage of the trade-in offer. "We thought that going with an industry leader would prevent us from doing business with a company that wasn't going to be here next year."

Bassett Healthcare has seven clinics installed and five still in boxes, Gorman said. She said the clinics that are in operation work well at taking the central hospital in Cooperstown to satellite health clinics.

Standards losers

PictureTel, ProShare and Vistium videoconferencing equipment all comply with H.323 standards.

"Initially, people were a little stunned" when they heard Vistium was going away, said Carlton Gates, chairman of marketing products and services at Inacoss Corp. in Omaha. Inacoss is a systems integrator that also uses Vistium internally.

But Gates said the trade-in offer is a pretty good deal for users. They can trade their Vistiums and receive significant discounts on ProShare desktop systems from Intel and PictureTel models from PictureTel.

Gates added that the systems all operate on the same international standards, so a user can swap out a Vistium for another brand.

Outsourcing bound

Indianapolis contracts with Systems and Computer Technology

By Mitch Wagner

The government of Indianapolis last week approved an \$81 million, seven-year contract to outsource most of its computer operations to Systems and Computer Technology Corp.

The City/County Council of Indianapolis, which also governs surrounding Marion County, expects to save \$26 million over the course of the contract by consolidating information services. Those services are a hodgepodge of 54 separate departments, cobbled together during 25 years of computerization.

"We don't have an enterprise-wide view of technology," said Michael Yoder, executive assistant to the mayor for administrative affairs. "All of the counties and departments built their own little empires."

Effective this week, the 100-person information systems staff for the city and Marion County will be hired by the outsourcing. They will join an existing staff of 835 people at 43 sites. Systems and Computer Technology will be responsible for IS functionality, except for police and courts. A separate proposal is being considered to outsource those functions.

Within a year, the outsourcing will put together a strategic plan for consolidating IS functionality. The plan may include centralized networking and migration from the government's mainframe to client/server systems, said Cathy Welsh, president of the technology management division of Systems and Computer Technology in Malvern, Pa.

A Hoosier potpourri

25 years of undirected IS growth has left Indianapolis/Marion County with a mélange of systems

Hardware: Amdahl 5990 mainframe; about 50 servers, including Sun Microsystems and Hewlett-Packard systems; Digital Equipment Corp. VAX systems and Alphas; and IBM AS/400s and RS/6000s

Desktops: 2,500 PCs, 1,500 dumb terminals

Networking: Many systems are unconnected. Others are connected by Ethernet and TCP/IP

Databases: Oracle, Sybase, Informix, IBM's DB2 and others

Desktop apps: Microsoft Office, WordPerfect and others

Outsourcing and consulting contracts are common among local governments because of concerns about the need to cut spending and taxes, said Tom Willmott, an analyst at Aberdeen Group, Inc. in Boston.

Smaller is safer

But most local governments sign consulting contracts, rather than wholesale outsourcing contracts, as the city of Indianapolis has done, Willmott noted. Outsourcing the operation can be dangerous unless the city maintains sufficient IS expertise internally to intelligently oversee the contract, he said.

Systems and Computer Technology will support 4,000 desktops, including about 2,500 PCs and 1,500 dumb terminals. The host system is an Amdahl Corp. 5990 mainframe system, which runs proprietary financial software, tax and assessment soft-

ware and purchasing.

The government also supports about 50 servers. Many of these systems are networked via fiber-optic backbone, although not every system is connected. The city's LANs are Novell, Inc.'s NetWare and TCP/IP.

Databases are from Oracle Corp., Sybase, Inc. and Informix Corp. and IBM's DB2. The government mainly uses Microsoft Corp. Office desktop applications, although WordPerfect software is also installed in some places.

The outsourcing contract is the latest in a series of privatization ventures picked up by Indianapolis/Marion County since Steven Gammie became mayor in 1992. More than 80 services have been contracted out.

"In the city of Indianapolis, we have a broad vision of competition, that we should inject private-sector competition into public services," Yoder said.

tual Life Insurance Cos. in Minneapolis, said he is eying ATM as a way of integrating voice and data into one network and eventually adding videoconferencing.

He has a frame-relay network that links 15 sites across the country at 56K bit/sec. His tentative plan is to experiment with low-speed ATM in his LAN and switch to higher speeds as needed.

Beth Gage, an analyst at TeleChoice, Inc. in Verona, N.J., cautions that T1 ATM probably isn't for frame-relay users who are interested in sending only data.

The low-speed service makes sense for users who are looking to consolidate voice, data and video or planning to move to ATM in the future and want to get their feet wet using the new technology.

Low-speed ATM "works ex-

tremely well," said Phil Whitehouse, communications engineer at Central Maine Power Co. in Augusta. Whitehouse brought a \$4 million-a-year telephone bill down to \$2.1 million by merging voice and data into a private ATM network that connects 15 locations.

AT&T is making its T1 ATM service comparable in price to T1 frame relay. That site is well with Jim Garlani, manager of network services at United Technologies Corp. in Hartford, Conn. His firm has a large frame-relay network.

"We'd want data and voice capability; that's the whole idea of ATM," he said. "If they give it to me at the right time, I'd have it tomorrow."

& Computer/telephony integration gets boost. See page 55.

3Com multimedia moves ahead slowly

Supporting products due in mid-1996

By Bob Wallace

Forget anticipation — 3Com Corp. is making you wait for a technology some say may never reach prime time.

3Com's 14-month-old Frame Access Control-Enabled (PACE) multimedia scheme still hasn't made it to market. 3Com now claims that products that fully use its PACE technology will be in place by the middle of next year.

3Com is banking that companies will want to run multimedia applications over fast-emerging switched Ethernet networks.

PACE is supposed to give applications with voice and video priority over data-only applications for the 10Mbps bit/sec. of bandwidth on each switched Ethernet link.

3Com stresses that PACE preserves users' investment in Ethernet cables and adapter cards, but users who want to use the technology still will need to buy Ethernet switches and keep pace with software and hardware changes in a mix of products.

"Multimedia is impractical

today," admitted Bob Roman, manager of business development at 3Com.

By the middle of next year, analysts say Asynchronous Transfer Mode (ATM) will provide a more viable long-term desktop switching foundation for multimedia applications. Users agreed, but with caveats.

"ATM still faces some hurdles. There's work to be done on assuring end-to-end management, and flow control has not yet been settled," said John Boyd, chief networking technologist at Northeast Utilities in Berlin, Conn.

Critical reviews

Analysts were critical of PACE. "ATM makes multimedia much more versatile and gives it a longer life," said Tom Nolle, president of CIMI Corp., a consultancy in Voorhees, N.J.

PAGE is essential to 3Com because the company said it doesn't envision ATM as a desktop technology in the foreseeable future.

Q Cisco introduces multifunction routers. See page 55.

PACE plans

3Com's PACE products will enable users to run multimedia apps over switched Ethernet links. Switches need both PACE hardware and software, while adapters need only new drivers.

PRODUCT	AVAILABILITY	DESCRIPTION
LinkSwitch 3000 (24 ports)	This month	Existing Ethernet switch
LinkSwitch 5000 (12 ports)	This month	New Ethernet switch (\$3,975)
NetBuilder II	This month	Existing routers
LinkSwitch 3000 (eight ports)	Q3 1996	New Fast Ethernet switch (\$under \$10,000)
LinkSwitch 3000 (six ports)	Q3 1996	Fast Ethernet workgroup switch
Fast EthernetLink sixteen PCI adapters	Q3 1996	New drivers
EtherLink III PCI adapters	Q3 1996	New drivers
EtherLink III ISA adapters	Second-half 1996	New drivers
LinkBuilder III MSH	Second-half 1996	Chassis hub
QICore Switching System	Second-half 1996	Chassis hub
LAMplex	Second-half 1996	Data center hubs

Low-speed ATM

CONTINUED FROM COVER 1

low-speed ATM will account for 70% of all ATM ports.

Rosemary Cochran, an analyst at Vertical Systems, said carriers are bowing to the market reality of customers flocking to the frame-relay data transport service at 56K bit/sec. rather than its maximum speed of 1.5M bit/sec.

Carriers are unlikely to make the leap from 56K bit/sec. frame relay to 45M bit/sec. ATM, but they will introduce T1 ATM into their frame-relay networks and move to higher-speed ATM as bandwidth requirements increase, she said.

For example, Steve Engel, network manager at Minnesota Mu-

Intranets gain status with Office suite users

By Cheryl Gerber

Users of Microsoft Corp.'s Office suite say they are likely to rely more on their internal company intranets, or intranets, as a result of Microsoft's recent announcement that it will ship free Internet software by the end of January.

Internet Assistant 2.0 was designed to convert Word to Hypertext Markup Language (HTML) so users can create and edit documents for the Internet and corporate World Wide Web sites. It can also extend the HTML capabilities of Microsoft's Excel spreadsheet and PowerPoint presentation software. Converting the spreadsheet to Web format, for example, may prompt users to use the Web as an indexing engine and to retrieve documents.

"I'm writing changes to my intranet right now. I'm coding by hand a whole bunch of HTML that I wouldn't have to if I had some of the stuff Microsoft is coming out with today," said Kelly Dwyer, global information technology director at Braxton Associates, Inc., a division of Deloitte & Touche in Boston.

Dwyer said enabling Word and other Office applications for use on the Internet could increase his company's use of its intranet and decrease its use of Lotus Notes (see related story, Cover 1).

"Notes is turning out to be really expensive. I'm able to publish more quickly on our intranet than I would be able to on Notes," Dwyer said. "The replication in Notes slows it down. Notes has strong uses, but our intranet is just easier to use."

One beta tester used Internet Assistant 2.0 to build his Web site. "Our Web site has the largest thesaurus index for entertainment resources in the world. We're the home page for 'Victor/Victoria,' 'West Side Story' and 'Aunt Mame,'" said Toby Simkin, CEO of Headquarters Corp. in Vancouver, Canada.

Simkin said Internet Assistant 2.0 is easy to use and is fully integrated with Office applications, "so you just cut and paste to transfer documents."

Internet Assistant 2.0 holds out the promise of improved communication for Satura Corp. in Spring Hill, Tenn. "I see this as a great tool for us to communicate between our overseas plants and with our outside suppliers," said Bruce Bemis, manager of strategic planning.

Internet Assistant 2.0 is available in beta on Microsoft's Word homepage at <http://www.microsoft.com/wordsoft/>. It contains an HTML Version 3.0 converter, which provides audio and on-line video capabilities.

News

Defense chooses MCI to power nationwide net

By Neal Weinberg

The U.S. Department of Defense next month will fire up a coast-to-coast network that uses ATM technology to transmit gigabyte-size files of weather and oceanographic data.

Once the system is in place, officials said, data transfers that once took nine hours will take nine minutes.

After recently testing Asynchronous Transfer Mode's (ATM) high-bandwidth, cell-switching technology, the Defense Department issued its first-ever competitive bid for commercial ATM service. MCI Communications Corp. in Washington won the \$3 million contract.

Under the Navy-Air Force ATM Communications Service project, data from land-based, shipboard and satellite sources will be sent to four processing centers across the country. The military will use the information to alert ships and planes to fast-changing, global weather conditions.

The service replaces the shipment of tapes from one location to another or the transmission of data over point-to-point T1 lines. But more important, the use of high-speed ATM lets the Navy and Air Force develop applications that weren't possible before.

For example, with ATM hurtling along at 45M bps/sec., 2.4G bytes of data can be transferred in nine minutes, which creates the



opportunity for real-time communication. It took more than nine hours to send that same amount of data with a T1 line operating at 1.5M bps/sec.

Smooth move

Beth Grage, an analyst at TeleChoice, Inc., a consultancy in Verona, N.J., said ATM is "an ideal fit for this application" because of the enormity of the files that need to be moved.

She said most ATM activity to date has been limited to trial runs by government agencies.

The Defense Department's decision to award a contract for a commercial ATM service is an important milestone for the technology, she said.

It also represents a major win for MCI. "It definitely helps legitim-

ize them as an ATM service provider," Gage said.

David Beering, senior staff telecommunications analyst at Amoco Corp. in Chicago, and an early ATM adopter, said, "I think every big deal that comes in the ATM environment is a big deal. The implication is that this is a commercial-grade service."

Because the technology is so new, he said, users and carriers are still in a learning curve. A project such as this offers much-needed experience to both parties and helps combat the perception that ATM isn't ready for prime time.

Under the contract, four locations are linked through permanent virtual circuits in a private subnetwork within MCI's public ATM network, according to MCI officials.

Australian vendors sell client/server software in U.S.

By Julia King

Two vendors from Australia — traditionally a testing ground for new software from the U.S. — recently turned the tables. They entered the U.S. client/server market with object-oriented application suites that run on a wide variety of databases and computing platforms.

Sydney-based OpenPlus International, Inc., a U.S. arm in Austin, Texas, is selling a suite of financial, inventory and distribution applications. A manufacturing module will be added next year.

The applications are based on the Unix-like open application development environment from Computer Corp. in Farmington

Hills, Mich. As such, the applications support all major databases and can run on a wide range of computing platforms, according to Mark Broughton, product marketing manager at OpenPlus.

By comparison, client/server application suites based on proprietary technology, such as SAP AG's R/3, must be ported to other R/3's by the vendor.

The OpenPlus software's ability to run on dissimilar hardware platforms is one of the key reasons Lightbridge Corp. in Fall River, Mass., bought the product, said Kurt Cornell, a systems specialist on the \$600-million lighting fixture manufacturer.

"We'll be distributing the soft-

ware across our warehouses and sales offices and maybe even to our distributors," Cornell said. OpenPlus will work across all of these sites because of its high level of portability, he said.

Initially, Lightbridge will run order-entry and warehouse distribution applications against an Oracle Corp. database on Hewlett-Packard Co. HP 9000 and HP 3000 machines.

Broughton said a core module, such as order management, costs \$60,000, plus \$1,000 for each concurrent user.

Separately, the Atlanta arm of Prophecy International of Australia announced a similar object-oriented suite of financial applications. Among other things, it

allows users to distribute software functionality according to individual business requirements.

Known as ProphecyOpen, the suite has 22 customizable software modules, including human resources, financial and order processing.

One of the software's key features, the company said, is its high degree of flexibility, which allows users to individually tailor how they view corporate data at their desktops. This is accomplished via the software's object-oriented architecture and Computer Associates International, Inc.'s OpenRoad programming language tool set, which runs in both Unix and Windows NT envi-

ronments. Prophecy's relationship with CA dates back to the late 1980s when the Unix-based Prophecy applications — which worked exclusively with CA's Ingres database — were under development. Formerly, Prophecy was known as CSP.

The OpenProphecy applications support all major relational databases, including Microsoft Corp.'s SQL Server, and run on more than 50 midrange computer platforms, according to company President Ken McKenzie.

McKenzie said Prophecy will sell through value-added resellers in the next quarter. Pricing will be "comparable" to that of other client/server financial applications, he said.



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WHAT THE BIG GUYS USE



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Plug-and-play imaging architecture ships

By Tim Ouellette

Users can scale up or limbo down with a flexible imaging architecture now shipping from Cornerstone Imaging, Inc.

Input/Accel is server-based management software that manages plug-in modules

related to the conversion of paper documents to electronic image files. There are modules for scanning, cleaning up an image, optical character recognition, export and back-end workflow and imaging systems.

"It is a Plug and Play environment for im-

aging," said Anagh Chatterjee, director of technology at CTB-McGraw Hill, an educational testing service. "We can plug in other recognition engines so we can stay abreast of the newest technology."

Previously, imaging users could buy a shrink-wrapped, all-in-one application or de-

sign an application from scratch. In both cases, upgrading the system required a complete reconfiguration.

CTB-McGraw Hill, in Monterey, Calif., uses Input/Accel to turn paper-based student tests into image files that can be scored and reviewed. The testing bureau can scale up the system depending on test volume without reconfiguring the whole system, Chatterjee said.

Keeping it decentralized

But some users don't want to do all their scanning in one place.

Stanford University Hospital in Stanford, Calif., wanted to let its widespread network of clinics and offices scan in patient information on an as-needed basis rather than send the paperwork to a central scanning operation after a patient's bill had gone out.

"We wanted to put scanners at the desktop all around but still centrally maintain quality control and indexing," said Bill Hester, project leader for business process re-engineering at the hospital.

Because Input/Accel's pricing is based on the number of images scanned daily and the number of clients, "I can now afford to put a \$5,000 scanner out at the front desk of a clinic or a department, where I am only scanning 500 to 600 documents a day," Hester said.

Imaging system users sometimes must reassemble documents that have been broken into separate image files. Image-Accel users said they can look at each file on-line, which they said is easier than having to review a group of files that just came through the system.

Works well with others

These vendors' products are compatible with Cornerstone's Input/Accel management software:



- Kodak
- Fujitsu
- Ricoh



- Caere
- Mitek
- Nestor



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KeyCode #2089

SystemView AIX upgrade enhances tools

Version 1.2 helps managers do everything from a single Unix console

By Patrick Dryden

IBM recently added a slew of new and enhanced functions to SystemView for AIX, a gift for managers who must do every-

thing from a single Unix console.

Users can't unwrap these gifts until New Year's Eve, but they can look forward to more presents later in the year (see story below).

Version 1.2 of the SystemView for AIX integrated management suite adds a dozen enhancements to optional tools for functions such as trouble ticketing, job scheduling, printing, backup and disaster recovery.

New functions help automate storage management, database administration, software distribution and performance.

Such added integration is welcome at the University of Florida's Northeast regional data center in Gainesville, where operators strive to get at multiple systems from one console.

"Our machine rooms look like the old Star Trek movies, with a console for every different system and subsystem," said Jerry Wetherington, systems coordinator at the statewide network. He said the university will group its IBM tools under SystemView on AIX and MVS platforms.

IBM is addressing a lot of user demands with the new release, said Tim Wilson, a management analyst.

at Decisys, Inc., a network consultancy in Sterling, Va. IBM helps users manage the network and the applications that run on that network similar to Hewlett-Packard Co. and others, Wilson said.

Integrated management

Simpler storage

IBM added Hierarchical Storage Management support to the AIX package to save administrators the chore of grooming server drives to make room for active files. The IBM function moves old files to automated tape libraries. It will cost \$10,000.

Network administrators can manage IBM's DB2 and Oracle Corp. and Sybase, Inc. database objects the same way from SystemView for AIX, without having to know the SQL syntax for each, according to IBM. This management tool, DataHub for Unix, costs \$12,500 for one console control point and five target servers running IBM's AIX, HP's HPUX or Sun Microsystems, Inc.'s Solaris.

Software Distribution for AIX automates software changes and distribution. It lets administrators group operations into a single step. It costs \$2,000 for each server and \$49 per client.

Objects evolution

IBM is trying to get its object-oriented management technology in gear.

Some upgrades come this month will get agent software to help them adapt performance management functions to share a common object-oriented framework from SystemView for AIX.

In January, beta testing will get under way on two features: Performance Monitoring of SNA Networks and Performance Monitoring of Applications.

This framework will let administrators access, view and manipulate performance data from dissimilar systems, networks and management protocols. —Patrick Dryden

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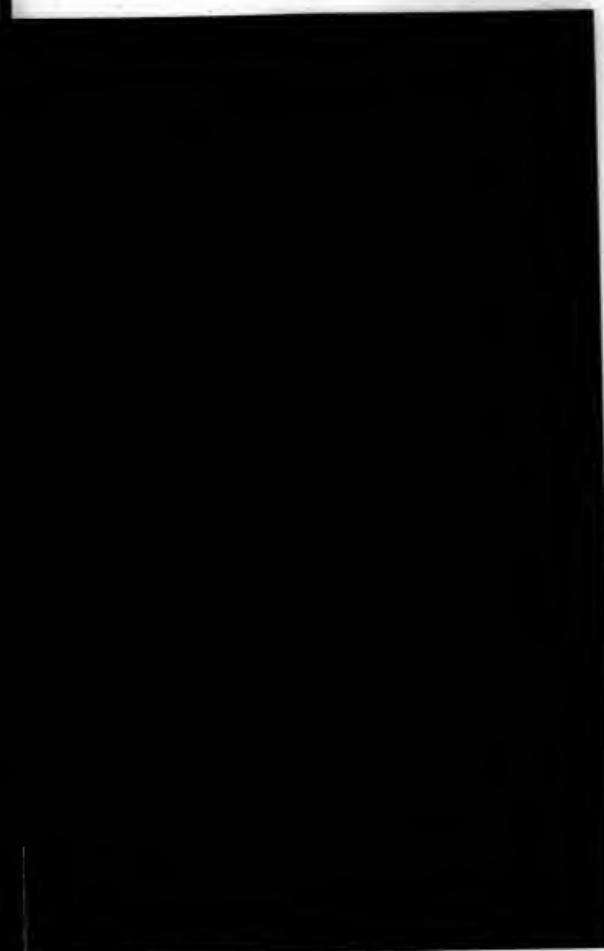
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Internet: Too good to be true?

CONTINUED FROM COVER I



Today, user companies pay for the LANs that connect to and become part of the Internet. They also pay Internet access providers for connecting them to an Internet backbone. Those access providers, in turn, pay long-distance carriers for transporting data packets over their national network backbones.

Early users of the Internet, mostly government and academic researchers in the 1980s, had cheap long-distance service because the backbone was government-funded. The major cost of the Internet was the investment users made in their local networks. Once those investments were made, incremental service was virtually free.

Federal funding has just about vanished now, but prices are still rock bottom. That's partly because carriers have priced their services to cover just the low operating costs of lines and equipment and partly because of keen competition in the long-distance market.

What the current prices don't yet reflect is the capital investment that will be needed to add substantial network capacity.

50 cents a month

Covering the operational cost of today's Internet across the U.S. comes to about 50 cents per user each month, according to Hal R. Varian, dean of the School of Information Management and Systems at the University of California at Berkeley. The cost is so low because the packet-switching technology used in the Internet is extremely efficient on existing

lines and switches, he explains in an Internet posting called "Economic FAQs [Frequently Asked Questions] About the Internet."

But new applications such as multimedia may stand these economies on their heads. A college student sending his mother a few minutes of digital video at 1M bit/sec. may send more data packets over the 'net than the entire faculty exchanging plain-text electronic mail all day long.

The need to push sound and moving pictures over the net extends into the business world as well. Organic Online, Inc., which has designed intricate World Wide Web pages for Saturn Corp., Sybase, Inc. and others, is seeing

more demand from clients to do just that. "But the current Internet infrastructure can't handle that on any significant scale," said Jonathan Nelson, president and CEO of Organic Online.

Bandwidth hogs spell doom for connection-based pricing, in which a user pays a low, fixed monthly fee for a data pipe to the Internet.

The major Internet service providers now openly admit they are headed toward some kind of usage-sensitive pricing. Experts have been predicting that for some time, and users fear it will be a pretext for raising prices.

BIN Planet Corp., in Cambridge, Mass., has begun moving toward usage-based prices to make pricing more fair overall, the Internet service provider said. Light and moderate users will pay less, and the cost of getting started on the Internet will be lower, said Mark Lumerdon, senior product manager.

Larger users will also benefit because their higher payments will help carriers build greater network capacity, thereby avoiding the need to "oversubscribe" existing capacity, Lumerdon said.

At the low end [56k and 1.5M bit/sec.], pricing will hold," said Phillip Grigs, director of Internet marketing services at MCI Telecommunications Corp. in Reston, Va. "But services at the higher end [10M and 45M bit/sec.] are greatly underpriced right now."

Boosting capacity

While users decry any possibility of price increases, many agree something must be done to boost end-to-end network capacity. Frank Daubeck, president of Communications Network Archi-

New pricing schemes for the Internet can be based on a simple principle: Data-munching users should pay more than underutilizing ones.

But a lot of open water separates that principle from workable pricing and billing mechanisms.

At the crudest level, Internet service providers could simply charge more for bandwidth-heavy applications, such as video, at 63M bit/sec. or more, than for access at 1.44M bit/sec. modems.

At a more refined level, providers can try to measure and bill for traffic over their networks. BIN Planet has a service in which it samples traffic in 15-second intervals and bills according to the average activity during the interval.

Another idea is to control congestion on the 'net by han-

ding users specify their willingness to pay for immediate data delivery in the form of "slabs." Routers would give priority to data packets with the highest bids attached.

The ultimate in fine-grained pricing could become reality if the Internet Engineering Task Force adopts a proposal to create a set of protocols called the "bearer service." The protocols would implement a range of user-specified and variable-priced qualities of service for data delivery, such as reliability, timeliness, correctness and bandwidth.

For example, a user of a videoconferencing application might demand immediate delivery but tolerate some data loss, whereas a file transfer user might require 100% accuracy but not care about delay.

— Gary H. Anker

tecs, Inc. in Washington, said both the access providers and the national backbone operators need to add capacity. "The problem is, who's going to pay the freight for the upgrades?" he asked.

Marc Pense, a developer of the original Virtual Reality Modeling Language, said the stability of the Internet is also in question as more users pile on. That is especially true during peak midday hours, Monday through Friday. "In California in the late mornings, the Internet becomes the Internet," he quipped.

At Hershey Foods Corp., top managers have yet to bless an Internet Web site launched last month by ambitious employees. Part of their hesitation stems from the lack of a clear-cut road map of future Internet costs and accountability, said Tom Loser, a webmaster and database administrator at the Hershey, Pa., firm.

Like many companies, Hershey built its site using some of the free software available on the Internet. "I bet we wouldn't even be on the Internet [today] if this stuff wasn't free," Loser said.

In Part II next week, Computerworld examines another question about the Internet: Who ya gonna call when it's broke?

Managing on-line headaches

Transporting data packets across an Internet backbone has become a low-margin commodity business. So access providers are beginning to offer other services to their corporate customers.

For example, BIN Planet offers a rich "managed" service that says can prevent users from getting headaches and save them thousands of dollars a month over doing everything themselves (see chart).

But users with modest needs can get by on their own and spend remarkably little.

Hershey Foods pays \$100 a month to a local access provider to maintain its Web site and give

dial-up access to the Internet.

Hershey paid just \$2,200 to an outside consultant to design the site and set up the graphics. The company devotes the equivalent of a part-time person to tasks such as updating the site with new chocolate recipes twice a month.

It isn't difficult to take these first steps to get on the 'net, according to Hershey.

"The industry is being ripped off by Internet consultants who come in and try to sell you a Web presence for \$10,000," said Tom Loser, a webmaster and database administrator at Hershey. "That's a crock." — Gary H. Anker and Ken S. Nash

Users who comparison shop for their company's Web presence will find startling contrasts

IN-HOUSE OPTION	MONTHLY COST
56k bit/sec. leased line	\$8,650
Local telephone line	\$4,000
Workstation (\$9,000 amortized over 3 years)	\$250
Netscape Communications Server software (cost \$1,995)	\$36
24-hour operations cost (1 full-time employee at \$60,000/year)	\$5,000
Total monthly cost	\$9,996
 OUTSOURCED OPTION	
800-Planet Web Advantage Gold Service*	\$2,000
1.5M bit/sec. leased line service	\$995
Local telephone line	\$100
Total monthly cost	\$9,395

*Includes setup, connection, 1000 e-mail addresses, Netscape Communications Server software, 24-hour operations (one day/2 weeks), hardware and software maintenance.



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Computer Industry

Fore/Alantec merger on

By Bob Wallace

Will all roads lead to ATM?

Fore Systems, Inc. switch market leader last week announced plans to merge with LAN switching pioneer Alantec Corp. This is Fore's second move into the LAN switching market.

The merger should give Fore users yet another way to gradually migrate to Asynchronous Transfer Mode (ATM) backbone networks. The announcement comes just one week after the Warrendale, Pa., firm bought CellAccess Technology Corp., a vendor of equipment that can let more sites access ATM networks.

"We want the Fortune 2,000 to migrate to ATM sooner and make sure that more of their network is provided by Fore," said Fore CEO Eric Cooper. "We want to deliver

all the on-ramps to ATM."

Some users said they agree with Fore's strategy.

"We're hoping Fore can provide a full range of products that take us from Ethernet to Ethernet switching and on to ATM, all in a smooth migration," said Gary Ellis. He is manager of engineering information technology at Westinghouse Electric Corp.'s Engineering Systems Business unit, a longtime Fore customer.

"The biggest challenge Fore faces is not getting sidetracked by nontechnology issues. Fore is growing so fast," Ellis said.

Ellis' unit uses Ethernet networks, Ethernet switches from Cisco Systems, Inc.'s Kalahau unit and Fore AXN-300 ATM switches. The Fore switches support high-bandwidth engineering applications and large data file transfer. "ATM is becoming much more fi-

nancially viable, and long term, we see it extending to the desktop," Ellis said.

The upcoming merger didn't surprise financial analysts since the duo had been conducting joint sales calls for some time.

Paul Weinstein, first vice president at Paine-Webber, Inc. in New York, said the merger would be a good fit and a financial success because both firms sell largely different product families. "Fore will need to retain its sales force and leverage the two companies' distribution channels, which is a crit-

VENDOR	DATE ACQUIRED	PRODUCTS	PRICE OF DEAL
Westinghouse	May	Routing software	Not available
Alantec	December (announced)	Ethernet switches	\$300M
CellAccess			

Estimate if the deal was consummated when announced.

ical issue," Weinstein said. Fore broke into the LAN switching market earlier this year when it acquired Ethernet switch start-up Applied Network Technology, Inc.

in Westford, Mass. Fore said there is little overlap in the two product lines because Applied Network switches are lower-end than what Alantec offers.

Data General targeting data warehousing arena

By Neal Weinberg

Data General is broadening its market with a move into data warehousing.

In a program launched last week, Data General Corp. said it will package its servers and storage systems with software from the leading database and on-line analytical processing tools vendors.

DG is targeting its data warehousing initiative at the retail and health care markets, which account for more than 40% of the company's revenue.

Henry Morris, an analyst at International Data Corp. in Framingham, Mass., said DG is on the right track in offering pre-built modules rather than leaving users to build their own warehouses from the ground up.

Analysis tool

A data warehouse lets retailers develop reporting systems that pull key information from raw point-of-sale (POS) data.

The information is then used as

a decision-support tool to help companies with marketing, promotions and merchandise selection.

For example, Dale Hansard, information systems director at Forest Galbreath Lumber Co. in Dallas, is in the midst of a two-stage upgrade that could lead to a data warehouse.

He is consolidating POS data from 60 retail locations in three states into a central repository. Hansard, in the middle of year two, said he expects to begin investigating how to create reporting systems for Foxworth's marketing, purchasing and financial departments.

"Data warehousing could be a tool to do that type of reporting," Hansard said. As an existing DG customer, Hansard said he will take a close look at the company's warehouse program.

The key components of DG's package are its Intel Corp.-based Avion servers, its Clarion storage platform and database support from Oracle Corp., Informix Corp. and Sybase, Inc.

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Apple readies layoffs, revamp

By Lisa Picardie

Apple Computer, Inc. is about to serve up its company restructuring du jour.

In the first quarter next year, the computer maker is expected to reduce its worldwide workforce of 14,000 by laying off 800 to 2,000 workers, according to sources close to the Cupertino, Calif. firm.

Apple has gone through several layoffs since CEO Michael Spindt took over in June 1993. However, a layoff of 2,000 would be its largest workforce reduction ever.

Downsizing

Sources at Apple said marketing and sales positions are likely to be cut first, with reductions particularly felt in Latin America, Canada and Europe.

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outsourcing its customer support sources said.

Apple officials declined to comment. The company also will appoint three vice presidents to oversee newly created units for the consumer, education and business markets, sources said.

The restructuring and layoffs are Apple's third attempt in nine months to pull operating costs in line with its dwindling gross margin.

A restructuring in April consolidated marketing into a single unit responsible for Apple's four business units.

At least half of the layoffs are expected to come in Apple's Americas division, which covers North, South and Latin America. Apple also is expected to begin

Apple cuts to the core

Apple employs 14,000 workers worldwide and 800 to 2,000 of those jobs could be eliminated

Workforce in Latin America, Canada and Europe Likely to be hit first

More than half the cuts are expected in the Americas division

Marketing and sales positions in the U.S., Canada, Mexico and Latin America to be hit hardest

Apple may outsource customer support

restructuring and layoffs make it apparent that things are not going according to Apple's plan," said Eugene Glaser, an analyst at Dean Witter Financial Services, Inc., an investment banking firm in New York.

Glazer said he expects Apple's first fiscal quarter earnings to come in below the original target.

The company has "no other choice than to reduce overhead," he added.

Another financial analyst said he is perplexed by Apple's continued change in operations.

"They are growing their business by scaling back their workforce," said Bill Gurley, an analyst at CS First Boston Corp., an investment banking firm in New York. "They seem to be schizophrenic [in] chasing market share."

Yet others applaud Apple's efforts to focus on core customers.

"So far, the restructurings have had a very interesting focus on the market segments Apple is keyed into," said Chris Le Tooc, an analyst at Dataquest, Inc. in San Jose, Calif.

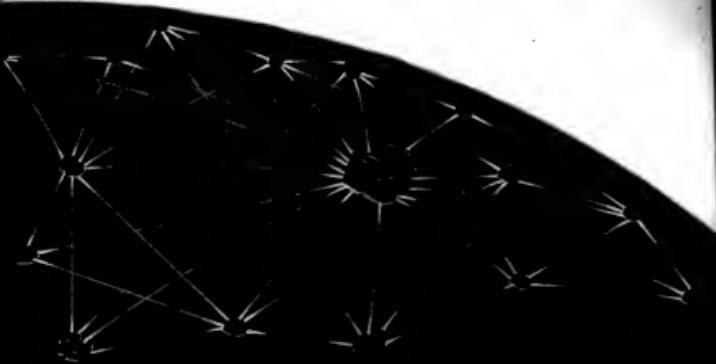
COMPUTERWORLD

Leadership Series

THE RECENTRALIZATION OF IT

Global competition demands the elimination of all activities that add cost without increasing value. As companies implement massive restructuring to improve customer service and end costly redundancy, they are rediscovering centralized IT — with a few twists.

BY ERNEST M. VON SIMSON



IT'S BEEN FIVE YEARS since "Career Is Over" was first used to describe the fate of the CIO. But a funny thing happened on the way to the gallows. A change in global realities has caused a profound shift in business rules. The new rules emphasize companywide efficiency and even synergy over local empowerment. And instead of being hanged, the chief information officer has been given a new lease on life.

The good news is that the CIO is more essential to the health of the business, more assertive in defining new applications and more influential across organizational divides. The bad news is that the list of challenges is growing. (See "Five challenges for senior IT managers" on facing page.)

The reason for this sea change: Decentralization is waning. A recent study by The Research Board of 25 very large corporations found that fundamental business pressures are forcing corporations to reassess their commitment to a decentralized IT organization. The companies participating in the study span a number of industries, including apparel, automotive, banking, chemicals, construction, consumer products, insurance, petroleum and retail. Sixteen corporations are North American and nine are European; most have significant transborder operations.

Restructuring within these companies has led to more central coordination and integrative management that links IT resources between business units and national subsidiaries. Such integration encourages sharing resources, common design of products and components and a sin-

gle point of contact for customer service. Indeed, 20 of the 25 companies are consolidating computing centers while strengthening central coordination and control over applications development.

This isn't a pendulum swing or management fad. The reasons are more profound.

1. Worldwide competitive pressures severely punish companies whose cost structures are burdened by staffing or resource redundancy. These pressures will intensify as advances in collaborative computing allow most knowledge work to be transferred anywhere in the world, and improvements in logistics allow most products to be manufactured without regard for proximity to end markets.

2. Consumer attitudes toward value increasingly emphasize price over status. Sensitivity to price persists, even during economic upturns, perhaps because of long-term declines in real income, perhaps because of the population aging that is evident all over the developed world. These trends mean that purchase decisions increasingly depend on low price and real value rather than brand loyalty. Cost containment through central coordination and resource integration is here to stay.

3. There is the widespread realization that local product variations built to suit specific geographies haven't brought consumers enough value — or their suppliers enough competitive advantage — to be justified. Food manufacturers have discovered that 75% of local variations in product flavoring and packaging are indiscernible by the consumer; an automobile manufacturer draws the same conclusion about engine part substitutions implemented by national subsidiaries. In both cases, local product variations are now considered frivolous because they add cost without adding enough value to inhibit a competitor (unburdened by these

Illustration by Lorraine Natale



coses) from gaining market share simply by dropping prices.

4. Major retailers and industrial customers insist their suppliers provide consistent sales, billing, service and logistics across all brands, business units and national subsidiaries. This emphasis on presenting a "single face" discourages local variation.

How does a corporation integrate resources, products and services without reintroducing the armies of bureaucrats, volumes of procedures and unacceptably slow market response? (All of which were rightly discarded less than a decade ago.) In part, through new organizational styles and performance metrics that emphasize companywide processes, asset-sharing and product convergence, all lubricated with a healthy measure of centrally controlled information technology.

Industry Trends

As these business factors force centralization, they drive the reintegration of IT. Examples abound in a range of industries as diverse as automotive, banking, consumer products and insurance.

Automobile manufacturers, confronting both excess capacity and the need to accelerate product cycles, must use common components across models. One U.S. automaker has globalized operations so that Europe has responsibility for smaller cars while North America produces larger models and trucks. In a parallel restructuring, the IT function has been globalized as well.

Likewise, a major European auto manufacturer moved early to centralize IT activities. Until 1992, it had inde-

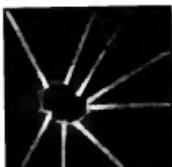
pendent IT departments for each brand, and smaller IT units in each factory. But following centralization in purchasing and logistics, IT was merged into a single organization. At this point, 48 data centers have been consolidated to six, and central development units organized by function are bringing together applications that resided for decades in individual plants.

This decentralization has two objectives: to save money and to accelerate changes in manufacturing. When each model and plant had its own idiosyncratic applications feeding its own computer center, years could pass before a companywide process improvement trickled through all the organizations, practices and computing platforms. With common applications and computing facilities, a change is now activated as quickly as users are trained.

Banks no longer enjoy protected geographic turf. They face new pressures on margins as competitors offer flows easily across international borders once comfortably maintained by state and national regulations.

A major Canadian bank's strategy of operating as a single business to improve customer service has simultaneously driven vigorous consolidation to cut costs and integrate independent units. For example, it is physically centralizing clerical activities from hundreds of small offices to a few large centers. Applications development is being centralized too, in part because common software programs will establish more common work processes and create potential economies of scale.

However, organizational centralization doesn't preclude physical decen-



TWENTY OF 25 COMPANIES
STUDIO ARE STRENGTHENING
CENTRAL CONTROL OF
APPLICATIONS DEVELOPMENT

Five challenges for senior IT managers

1. Cut companywide IT expenditures by large percentages despite the new tasks that must be supported. Fortunately, cost cutting is often concentrated in local units, thereby reducing resistance to central coordination and to the conversion of regional IT departments into competency centers.

2. Assist in the integration of business processes across product lines, functions and geographies. Again, the objective demands a higher degree of central coordination than before.

3. Accelerate the pace of applications development. CEOs often say they are less concerned by the cost of information systems than by the sense that "it's too damn slow," given the hectic pace in business. But be warned: Accelerating cycle time implies radical change in traditional IT development practices, which is neither internally popular nor easy to implement.

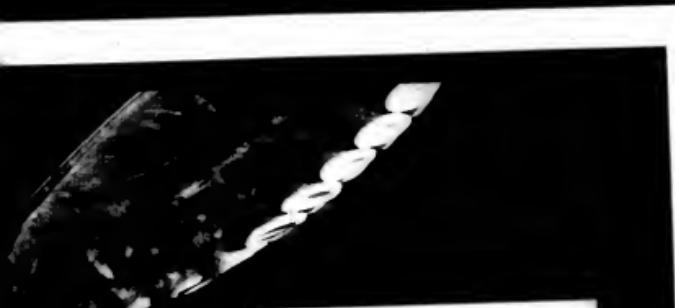
4. Replace existing technological infrastructures. It's relatively painless for almost anyone to install a new technology, which may (or may not) find critical mass in terms of usage; it's very difficult to get rid of old technology, whether it still attracts a critical mass of users or just a stubborn handful.

5. Prevent recalcification of the IT organization. In other words, head off the tendency to re-create an inward-looking and arrogant IT bureaucracy. Remember, that's what prompted the push for decentralization and splintering in the past. External benchmarks, very selective outsourcing and metrics focused on business responsiveness are all-important to this task.



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Computer Systems

tralization. Many of the bank's applications development initiatives are being left in their locations but recast as companywide competency centers for a specific application or technology. For example, the bank will turn three large application development centers now dedicated to individual businesses into three specialized competency centers serving the institution as a whole.

Competency centers are often the best way to retain skilled employees and local managers. They also give local users a ready adviser in computing technologies. Both considerations outweigh the dubious benefits of forcing physical consolidation of systems developers who aren't even working on the same projects.

Consumer products companies traditionally favored decentralization to ensure closeness to markets. Business units had considerable autonomy from a distant headquarters, perhaps because they were acquisitions and lacked ties to the overall corporation. Rapid response to consumer preferences is considered more important than operating

synergies that might slow the pace.

But time-to-market need not preclude coordinated application development across brands and geographies to reduce IT expenses and promote software reuse. Business units can be close to markets and simultaneously integrate billing and logistics between product categories.

One of the world's top consumer products firms emphasizes global product development to drive down costs by driving out frivolous diversity. National subsidiaries, for example, are not allowed to tweak the soup formula to satisfy a perceived nuance in local tastes.

There's also much less tolerance for decentralized IT strategies and applications that raised costs and returned only mediocre results. Local managers who were ill-equipped to oversee their IT units invariably gave precedence to local wish lists and budget requests rather than companywide initiatives. Inevitably, IT budgets rose without a corresponding increase in IT utility.

Local reporting links have since been severed. Dispersed IT units have

been transformed into competency centers that develop business applications for the region or for the entire company. Thus, the Italian IT center may now be responsible for sales reporting systems for all of Europe.

Insurance carriers are also experiencing a variety of pressures to centralize, or centrally coordinate, their processes. For example, property losses from Hurricane Andrew at one large insurance company precipitated a focus on hedging regional exposures by encouraging agents to sell different types of coverage, such as life and property insurance, to a single policyholder.

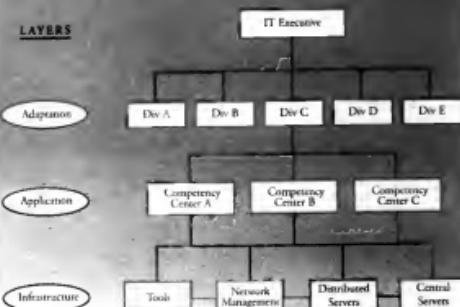
This goal requires closer coordination of sales commissions and business metrics — all previously the province of separate business divisions — and common IT systems for sales support and billing.

It's also clear that insurers will face ever-greater competition from other regions, or even other countries, as new technologies reduce the need for local offices, agents and claims examiners (just as ATMs reduced the number of neighborhood bank tellers). Locally, bricks and mortar add cost without commensurate benefit. Central information technology can displace bricks and mortar by letting sales and service employees become "locationless."

For example, a senior manager at a French insurer questions whether subsidiaries are necessary when technology traverses national boundaries, especially in Europe. He notes that insurance products already are being sold by telephone with astounding success in the U.K.

Claims processing also could become lo-

ORGANIZATIONAL ARCHITECTURE



Source: L. Carding / The Research Board

cannonless. Early tests suggest that 90% of claims reported by telephone immediately after an accident are valid, and that 85% can be settled in only 20 minutes. Payments are lower, partly because quick response reduces quibbling. In short, a rapid response via an automated system can reduce both sales and claims costs, improve customer service, boost profits and may make local subsidiaries obsolete, at least in Europe.

New model

Greater IT coordination and the use of common systems requires a new organization model. (See diagram at left.) A composite of best practices, the model is depicted as an "architecture" because, like a network architecture, it untangles complexities and dependencies, sorting them into three self-contained layers.

Infrastructure Layer. This contains all of the hardware, software, communications and tools necessary to operate the IT utility. Its employees are often computer science graduates; its metrics are strictly cost-based.

Infrastructure costs decline as servers are moved from user areas to data centers, and as data centers are consolidated. This intensifies with declines in communications costs. Savings of 20% of total operations expense are typical. Not even corporations with a cultural preference for decentralization are immune to this trend.

Application Layer. This consists of

three to six competency centers, created from units formerly serving specific business activities or national subsidiaries. Each center is made responsible for developing applications that serve a function across all business units, such as new customer acquisition, product development or management of the supply chain.

Competency centers are left in place for two reasons. First, they represent a valuable conglomeration of management skills, technical talent and coordination practices that would be expensive to reproduce. Second, applica-

tions groups (unlike computer operations) exhibit few economies of scale. And keeping them dispersed makes the participants less susceptible to the bureaucratic antipathy inevitable among the denizens of one central unit.

Ideally, competency centers are staffed by self-sufficient teams of users, developers and tools technicians; a multidisciplined team is necessary to ensure successful application development. Users are top-notch line managers assigned to IT for 70% of their time. Developers have broader educations than the tool technicians and network troubleshooters in the infrastructure layer.

The self-sufficiency of each center is judged by its ability to reach project decisions without external manage-

ment reviews. The metric for this layer? Probably a variation of time-to-market measured from when the project begins to the point where the business benefits exceed applications development and start-up costs.

The purpose is to tie users and developers to a common incentive, so neither can be rewarded unless the other succeeds.

Adaptation Layer. This layer is staffed by internal consultants skilled in process change and technology implementation.

While they report to the IT executive, these employees are assigned temporarily to business units to help line management achieve maximum gain from the infrastructure and application layers. For instance, they might suggest business process restructuring using groupware managed at the infrastructure layer combined with an application developed in a competency center.

Clearly, these are not simply people generating new systems requirements. They are business generalists with implementation skills whose strengths are curiosity, analytical aptitude and the ability to communicate. Their metric: Business results and productivity achievements.

This organizational architecture provides a workable concept for firms grappling with three simultaneous tasks: Integrating global business processes; cutting total infrastructure costs; and eliminating local systems diversity which adds management complexity but brings no value to the customer. ■

ABOUT THE AUTHOR



Ernst M. von Simson is co-founder and senior partner for research at The Research Board, a New York-based institution sponsored by a closed group of senior IT executives from 100 of the largest North American and European corporations. Von Simson directs studies that identify and assess the practical economics of information technologies, both current and evolving. He was previously research director at a well-known international management consulting firm.

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Viewpoint

Web wars

Call it the return of the Lotus.

In delivering a hard right Internet follow-up punch to Microsoft's stinging jab of the week before, Lotus demonstrated that Netscape's lack on the Web server market is far from given. Lotus surprised a lot of people by sketching out a thoughtful and compelling case for using Notes as a Web back end. If it can deliver, it will make the Internet wars very interesting.

Lotus' strategy, which is detailed in our front page this week, makes two smart assumptions about the Internet: that most of the commercial action for the foreseeable future will be on internal — not external — Web, and that users aren't inclined to give up their existing investments.

That presents intriguing possibilities for Notes users. Notes, after all, has been doing Web-like stuff since 1987. But until recently, Lotus has been in denial, playing up the advantages of Notes while, I believe, secretly hoping the Internet would just go away.

It won't, and Lotus has wisely opted to grab the Web in a big, warm bear hug. Under the Lotus plan, publishing Notes documents on the Web will supposedly be as easy as tying your shoes, and just about any Web browser will be a stable client in a Notes/Web network.

The strategy is shrewd because it plays on a few key Lotus strengths. For one, Notes users are a pretty loyal bunch, and they'll welcome products that let them publish on the Web without forgoing their investments. The second advantage is that Lotus is an IBM subsidiary and, as such, can afford to lose a lot of money without the outside world's noticing. Lotus no doubt is cutting margins to the bone in slashing the price of Internet-enabled server by more than 70%. When in the public eye, it couldn't afford such a luxury. With Big Blue daddy bankrolling the affair, well, partly on.

Taken together, the Lotus and Microsoft announcements illustrate the volatility of the Internet market. Netscape stock has shot up nearly 200% in four months on investor assumptions that it was Microsoft II. That may be, but Netscape won't succeed without a challenge from established competitors like Lotus that can play the installed base card.

The success of this strategy depends, of course, on Lotus' ability to deliver the promised features on the aggressive schedule it has outlined. If it can, it will have implemented a strategy that effectively blunts Netscape's appeal in big Notes shops and gives Notes users a reason to stay the course. It's a good plan.



Paul Gillin, Editor

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Combined approach works best

Regarding "Should IS be centralized or decentralized" and "The central issue" [CW, Nov. 27], a single polarized view is rarely sufficient to provide a lasting solution. Usually, a combined position is best.

Regarding IS decentralization, it is clear from all reports that a simplistic approach rarely works for long. While centralization for the sake of efficiency is easily supported, it often leads to a lack of effective involvement by business management and users and service and support backlog.

You must appropriately balance centralized and decentralized approaches. Centralize the infrastructure (operations, systems engineering, architecture, etc.), establish a cohesive set of standards to guide the selection, acquisition and development processes, and simultaneously have business areas supported in a decentralized way.

There is a stark issue of oversimplifying complex issues in search of monolithic, simplistic solutions. IS strategy should consider the organization's culture, operations, automation and change history.

George P. Flanagan
New York

Web terminal idea won't take off

The idea of a "Web terminal" ["A dumb Web terminal is just a dumb idea," CW, Nov. 13] is never going to fly because it reflects a slow-is-OK philosophy that just isn't viable in the marketing world. Most people don't need Pentiums — yet Pentiums outsell all other CPUs. People are going to want their toaster to be able to handle multimedia and the ever-demanding games that are out there.

You're just marketing a lobotomized PC. It's easier just to fit it with a 540M-byte hard drive, put an existing operating system on it and sell it for \$100 more.

Nor an "Internet PC" with Integrated Services Digital Network, a sound card, a video card and a VGA-television output that sits on your TV and works with mice and keyboards while you sit on the couch — that might work. But that's another ballpark altogether.

Steve Levin
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Don't fault workers

It has become more of a fashion to blame foreign workers for business decisions ["Programmers to Senate: Preserve American dream," CW, Dec. 4]. If all this is about jobs, then I have an idea. Let's stop importing those cordless phones made in Japan, speakers made in Taiwan, T-shirts made in Mexico, perfumes bottled in France, CD players and TVs made in Malaysia and toys made in China. Let's start making all

of them in the U.S. There can be millions more jobs this way.

The software industry is just another industry, and it is subject to market conditions. The situation will only worsen if we prevent foreign workers from participating, forcing IS departments and software companies to opt for more and more offshore solutions to remain competitive and efficient.

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Productivity greater with Mac

"Win 95 equals Mac 87, but who cares?" [CW, Nov. 20]. I care. I don't want to use an operating system that is just now catching up to one from nine years ago. While Microsoft was busy copying other operating systems, Apple was going to improve the Mac OS in many other ways.

The fact is, the Macintosh is easier to use, and people are more productive when using a Macintosh. It seems to me that being more productive is something businesses would be very interested in.

Craig Stephens
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More letters, page 42

#Computerworld welcomes comments from its readers. Letters should not exceed 200 words and should be addressed to Bill Labien, Editor in Chief, Computerworld, P.O. Box 92972, 500 Old Connecticut Path, Framingham, Mass. 01720. Fax number: (508) 875-8932; Internet: letters@cw.com. Please include an address and phone number for verification.

Chris Miksanek

Ctrl-Alt-Delete those holiday trinkets

I don't know what it is about us computer types. During the holidays, I have a painted-on smile that's bigger than Bozo the Clown's. Each of my relatives finds a different computer trifle to give me, and I have to act appreciative.

"Mom, thanks. What is it?"

"It's a wallet with eyes, sitting next to a computer terminal. Computer nut. Get it? Cute, huh?"

You know, I really do feel sorry for that Powatame tribe if this is the best they can do.

* * *

"Aunt Lois, where did you ever find an ergonomic mouse-soup-on-a-rope?"

"Do you like it, Chris? I mean, if you don't, I saved the receipt."

"No, it's great. It'll uh, come in handy." Yeah, like when I'm looking for something to hang myself with.

* * *

"Uncle Don, you didn't have to."

"Well, I know you work with computers, and I thought you'd get a kick out of it. It's a chocolate computer diskette. High density."

"Terrific. Now I can really put that new version of Norton Utilities through its paces."

* * *

"I'm really embarrassed, cousin Peter. I didn't get you anything and... and... you got me this most excellent... this tasty-looking... fruitcake in the shape of a hand scanner."

* * *

"Well, I remember how your eyes lit up last year when your brother got the cheese log in the shape of a Nintendo Power Glove, so I shopped and shopped, and I finally found this for you."

"What a lucky break for me that you did!"

* * *

"You didn't think your grandmother would forget you, did you? I know you have a computer at home so I got you this little magnet to stick on it."

"It says, 'I ❤️ computers.' Gee, and all I got you were these fuzzy dice to hang from your walker. Gram, I think of you every time I have to degauss my monitor."

* * *

What I really want to know is where people even find junk like this and why the local authorities haven't placed some sort of embargo on its trade?

I'd like to give an award for the most inappropriate gift. Maybe the award should be some type of self-deprecating device.

The reason I'm so out of the holiday spirit is that there are so many good gifts out there for us computer nuts.

Call me radical, but I would prefer to receive a nice sweater rather than a box of blank floppy disks any day. (Or simply give me the gift that keeps on giving: an annual.) But you can't tell friends and relatives that.

* * *

"What? More? Ahh, you guys are just too generous."

"We know what a wine connoisseur you are. So, naturally, when we saw this in the store..."

"Cold duck in a Herman Hollerith data center. You shouldn't have. I really mean it. You



Let's ban chocolate diskettes. Ditto the mouse-shaped soap-on-a-rope



CHRISTOPHER WEYANT

Miksanek is a programmer in Rochester, Minn., with a holiday dilemma. He drew his manager's name in the department's Santa grab-bag. How will he top what he gave his manager last year — an ulcer?

Patricia B. Seybold

Prepare for a three-way convergence

Three business drivers are converging rapidly. Like three truck drivers barrels at breakfast speeds toward an unanticipated intersection on the information superhighway. These business drivers are the need to foster customer loyalty, the need to integrate applications and data in order to streamline business processes and the need to position the business for the brave new world of electronic commerce.

But the convergence of these business drivers won't cause a traffic accident of major proportion. With a little advance warning and some good coordination, business and information systems managers can leverage each of these trends to further the others, build synergy and deliver greater return on investment.

Fostering and maintaining customer loyalty is becoming a greater concern in many industries as global competition takes its toll.

Organizational boundaries are beginning to blur. More functions are being outsourced. Distribution channels are being squeezed and eliminated. Trusted intermediaries between the customer and supplier are finding themselves an endangered species as manufacturing and distribution become increasingly automated.

Customer loyalty is the only sustainable com-

petitive advantage in many industries.

But how do you build and retain loyalty when your internal business applications don't talk to one another? How can you cross-sell products and services if your customer information is organized by product line? How can you meet customers' needs for customized products when your procurement, manufacturing, customer support and sales systems are incompatible?

Obviously, you can't. By addressing the business process design and technical issues involved in streamlining operations and integrating applications, you are building much of the infrastructure you'll need to improve and sustain customer loyalty.

Let apps do the talking

What's the best way to integrate disparate applications? The most straightforward approach is to have each application publish the business events that other applications need to know about. Let each application subscribe to the business events it needs. You can implement this strategy using different middleware solutions. But first you'll need to do some business process design work to identify the key business events in your customer-driven processes.

This also would be a good time to look at the impact that electronic commerce is likely to have on your business.

Chances are pretty good that somewhere in your organization, someone is putting together a strategy to take advantage of the information superhighway. In fact, I'd be willing to bet that you have several disjointed initiatives under way.

Somewhere in your marketing department a World Wide Web home page has been designed and launched. In your procurement area, you've already got electronic data interchange links to many of your suppliers. To your distribution and logistics area, yet another application links your inventory systems to those of your largest customers. And, if you're lucky, your sales and line of business executives have electronic connections to many of their key accounts.

Why not combine these electronic "value chain" initiatives into a single, comprehensive strategy?

Use business processes to focus your attention and identify each of the key business events as the interface between the electronic marketplace and your internal applications.

If you converge your strategies in these three critical areas, you'll be way ahead of your competition.

Seybold is president of Patricia Seybold Group in Boston. Her Internet address is pseybold@pacgroup.com.



Here's a road map for merging today's Big Three "business drivers."

The hot trends are customer loyalty integrated systems and electronic commerce

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Kevin invented automatic 16/32-bit thunking.

Lee is a C++ guru.

Bob is an architect of IBM Open Class.

Lee co-wrote the book on the technical use of C++.

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<u>October</u>	Design Patterns Visual Programming	John Vlissides Rod Smith
<u>November</u>	Writing Efficient C++ Code Class Library Design	Kevin Stodely Bob Love
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Year 2000 issue a problem only for some

I've felt the century change "opportunity" has been a dirty little secret of IS departments for a long time now. If you start now ... you just might make it." CW, Nov 20.

I'm glad I work in systems and not in application development; it will be those much more lost productivity for those departments to hunt down each date field and correct it.

Even more critical are those databases that use a time stamp as part of the index.

Sorry, Mr. de Jager. Your article on the dreaded woes of the year 2000 just isn't correct.

I tried setting the date and time on three different PCs as recommended in your article as "proof" of the impending doom. All three computers — a Compaq Prolinea 386, a Dell 486 and a Gateway 2000 Pen-

The whole database will have to be converted and re-indexed between now and 2000.

One exception is Peter de Jager's article to note. Every other century is not a leap year, only the even centuries (1800, 2000, 2200, etc.). A little confirming research would be appreciated.

Stuart Cokes
Manager, Systems & QA
Boston Children's Hospital

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team — performed as they should. The date rolled over to 1/1/00.

In the future, keep the date fears where they properly belong in the glass-house mandatrices.

Royce Socka
Mountain, Calif.
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SNA performance always better

"Microsoft serves up host link" [CW, Nov. 27] quotes Microsoft's general manager of the SNA Server unit as saying, "Utilizing TCP/IP as the backbone protocol gives them faster response time for accessing corporate host-based applications."

This statement is false. SNA, and all proprietary protocols, will always outperform public-domain protocols. The most basic reason is that when you are transporting SNA over TCP, you are substituting TCP and IP's longer headers instead of just a Synchronous Data Link Control link header. Proprietary protocols are custom designed for speed and fast response times; encapsulation techniques aren't. SNA also has mechanisms to favor interactive traffic over batch-type traffic; most TCP implementations don't.

SNA and other proprietary protocols give the best bang for the buck when used for the tasks they were designed for. SNA becomes less cost-effective when encapsulated in TCP/IP.

Craig Dudley
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Good help is available

Incredible! Companies have spent the decade making it clear that they offer jobs, not careers, and now the "mercenary" programmer is to blame for high turnover ("Good help gets harder to find," CW, Nov.

13). Like many programmers, I am employed because my current skills are in demand at my current employer. Should the company's needs change, the corporate ethos of the '90s demands my release — no replacement, just a check and an escort to the front door.

If reducing turnover is a serious priority,

IS management must learn how to attract and retain long-term employees. This isn't done with money, which only encourages mercenary behavior, but with loyalty: You stick with me, I'll stick with you. Find ways to demonstrate long-term interest in your employees and you will have talented programmers beating a path to your door.

Keith Spitz
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App development better left to pros

In your "Clear Look: Visual Development Tools" [CW, Dec. 4], the reviewer adds, "If visual development tools are so easy to use, why not let users develop their own applications?"

My question is: Would an airline pilot let a passenger run a check on his jet if new, sophisticated maintenance equipment were available?

Systems development is a career that includes thousands of learned variables.

Bob Becker
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Machines help us expand our creative minds, not destroy them

Regarding "We're losing our creative minds" [CW, Dec. 4], yes, people can use technology to become drones. But they can also use it to paint, sculpt, film, write and do many other creative activities. Whether these tasks are done with a chisel, brush and quill, or mouse and display, they still use technology.

Are applications today less creative because we no longer have to hard-wire

Losing our creative minds? Marc Gunderson has clearly been watching too much Star Trek.

Machines are tools. They don't think, they don't create. We should use machines to free us to be ever more creative. Would you rather spend your time proofing an article for spelling or improving the content? And if a template helps someone who's graphically impaired learn good design principles, that's a good thing.

Gunderson laments, "We'll all have the technological clout to make ourselves something that we aren't: artists, systems analysts, musicians or research

programs into room-size computers? Are we approaching a "mental holocaust" because we use Internet and Web sites rather than the pony express? If so, why does Gunderson, at the end of his article, include his E-mail address?

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scientists." But the truth is far from that: programs can liberate the artists within us.

Instead of spending most of my programming time figuring out how to get access to various bits of data, I can spend that time turning data into useful information.

Do good tools impair creativity? Not in my experience. If you prefer to carve your cathedral with a dull chisel because it "builds character," that's your choice.

Jes Beuren
Rochester, N.Y.
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now Transfer Mode (ATM) can offer one fourth the bandwidth at twice the price.

Byron Jones
Miami

BjONES@attmail.att.com

Why switch to less bandwidth for more money?

Wow! A whole 25M bit/sec. for just under \$1,000. I ATM to desktop breaks \$1,000/seat! CW, Nov. 27. I wonder how many people are going to drop their plans to implement 10Base-T now that Asynchro-

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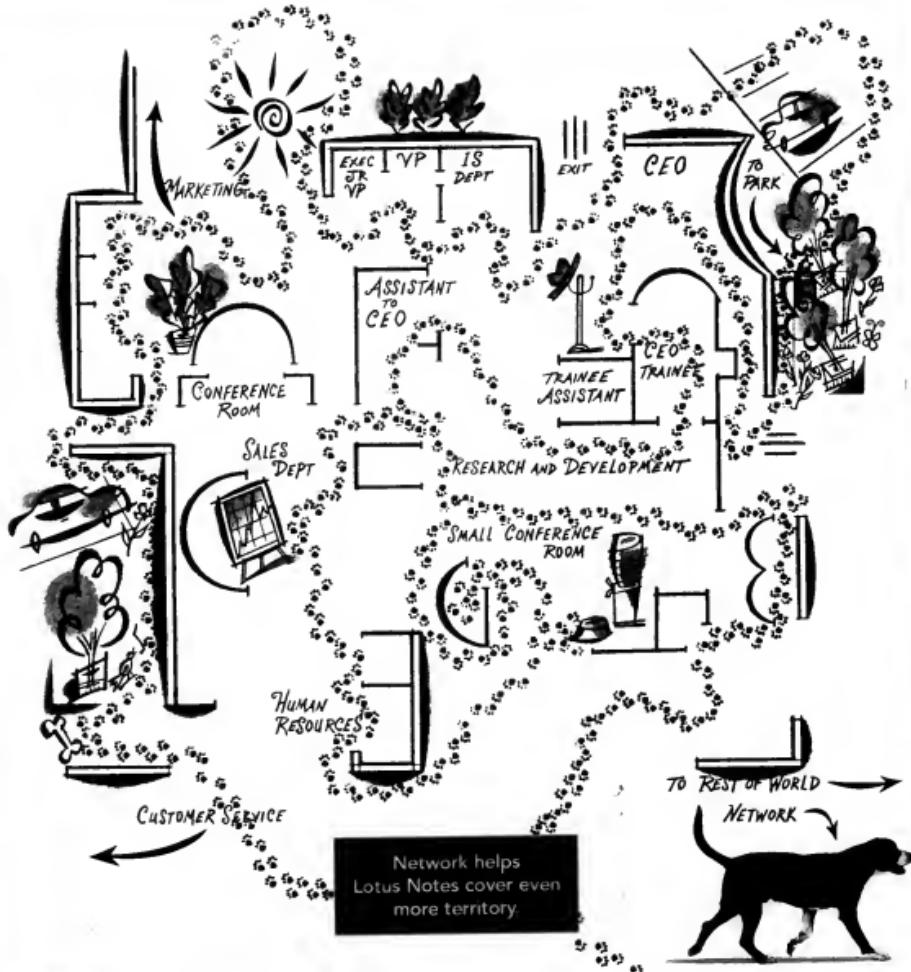


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Desktop Computing

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Staying in touch

By Mindy Blodgett

Ask any successful salesman his secret and the answer will be the same: contacts. Keeping in touch with contacts, remembering the names of their children and, of course, the details of your last business conversation is part of that — so is staying organized and on top of appointments and callbacks. To track all of this, sales forces use contact management software.

Though planted solidly at the bottom of the overall sales force automation software market, contact management software claimed about 21.6% of the total worldwide revenue last year, according to International Data Corp. (IDC) in Framingham, Mass.

One reason for its success is price. Contact management software can cost as little as \$99 per user, and it does the job.

Jack Frame, a vice president at Corestates Financial Corp. in Philadelphia, is a longtime user of Elan Software Corp.'s Goldmine contact management software. "Vare [the bank has more than 300 Goldmine users].

At the beginning of the firm's automation efforts, "people said, 'What are you doing with all these toys?'" Frame said. "Now they know. Using this software to drum up more business is like shooting fish in a barrel."

Frame said between 60 and 70 sales representatives recently were able to make 2,000 sales calls in one day using the software database. And those calls yielded eight requests for business proposals — an excellent average, he said.

"Being able to make 2,000 sales

calls may not sound like much to telemarketers, who can make more than 3,000," Frame said. "But in the business-to-business banking world, that is a lot."

The banking representatives used to engage in "blitzing" — a practice of calling or driving to several businesses in a single community.

Contact management software usage has dramatically increased the number of sales calls at McDonald Information Systems in Los Angeles. The company uses Symantec Corp.'s Act.

"I used to only be able to handle 20 to 40 customers on a 60- to 90-day sales cycle," said George Colemen, a senior sales representative who works remotely using an IBM PC Co. ThinkPad notebook. "I currently have 600

prospects in my database, and I haven't hit my limit yet.... It's my personal secretary, if you want to look at it that way."

Change on the way

But contact management is in for a change. As cost cuts and an emphasis on customers drive mobile employees, they want software that will tie in to corporate networks.

"It's a natural evolution," said Karl Wong, an analyst at Dataquest Inc. in San Jose, Calif. Wong said synchronizing data between notebook computers and databases on the home network will become increasingly important.

Symantec has added these features to Act, its most popular contact management package. The Cupertino, Calif., company released Act Mobile Link this spring, giving it two-way merging of contact, history and activity information for mobile users into a central Act database. Elan did something similar with Goldmine.

"Contact managers have become more sophisticated in keeping up with the needs of users," said Judith Hodges, an analyst at IDC. "The leading vendors now give users a customizable screen, OLE support and access to E-mail."

IDC analysts predict the contact management market will continue to grow. But they say unless the vendors work together to provide full, integrated product suites, contact management could be nudged aside by users

Changing the focus

Although the current contact management market is hot, some think vendors need to completely rethink their strategies to keep customers interested.

Analysts at Gartner Group, Inc. in San Jose, Calif., recently said that "while the contact manager is the most often purchased application in [sales force automation], its days are numbered."

"The problem we have with contact managers is...their focus is crucial," said Ken Dulaney, an analyst at Gartner. Dulaney said salespeople need tools that reduce their close times and increase their close rates.

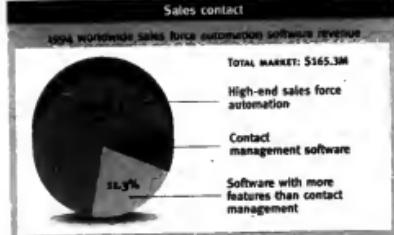
Users will gravitate toward enterprise sales force automation applications with sophisticated databases, such as Lotus Development Corp.'s Organizer. These programs are more easily integrated into the company, according to Dulaney.

Karl Wong, an analyst at Dataquest, said contact management's direction is "more toward groupware." With companies such as Microsoft Corp., Lotus and Novell, Inc. adding information management to their product lineups, Wong said the smaller contact management companies may be forced to partner with the big players.

"A second issue is how the companies will adapt in social terms to how people organize their lives," Wong added. "Some people are anal about entering their information into the database, and others have to be harassed. This stuff has to be easier to use for some people to actually use it."

— Mindy Blodgett

who are increasingly migrating to higher-end sales force automation products.



Source: International Data Corp., Framingham, Mass.

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Desktop Computing

Firm upgrades asset management software

By Cheryl Gerber

Asset Software International Corp., in Ottawa recently upgraded its asset management software by integrating its modules and adding other features.

The data processing arm of a Chicago bank recently completed a 50-desktop pilot program using the software. The bank is expanding the pilot program to 1,000 desktops.

"We had very good results with our pilot, so we're moving forward," said Mike Shelley, vice president of end-user computing at ABN-Amro Services Co. in Chicago. "But we're still waiting to see how scalable it is — if we can take it up to manage more than 10,000 desktop assets in the next two years," he said.

McAfee updates SiteMeter

By Bob Francis

McAfee Associates, Inc., recently announced a new version of its software metering package that adds SNMP support among other features.

Version 5.1 of SiteMeter also adds Xbase support and a new desktop metering feature, along with new enterprise features to its SiteInventory software.

The releases are an interim step to McAfee's upcoming first-quarter announcement of an integrated console. The company plans to link products for managing security, desktop configuration, support and storage.

New capabilities

With the new features, SiteMeter can deliver critical software usage information to Simple Network Management Protocol (SNMP) network management packages such as Hewlett-Packard Co.'s OpenView, IBM's NetView and Sun Microsystems, Inc.'s SunNet Manager.

Future SiteMeter releases will include SNMP agents that provide even more advanced remote management functions.

Just as organizations have expanded their desktop assets in recent years, their need to manage those assets also has grown, said Joe Puccirelli, research director at Gartner Group, Inc. in Stamford, Conn.

The average five-year total cost of ownership for a Windows 3.1 PC is about \$41,500. Of that, more than 50% is in support costs, which is what you are looking to manage. If you help

the enhanced asset management software, AssetPro 3.0, works with a wide array of products, including Microsoft Corp.'s

Systems Management Server, Intel Corp.'s LANDesk, Hewlett-Packard Co.'s OpenView for Windows, Symantec Corp.'s Norton Administrator for Networks and Tally Systems Corp.'s Cenergy asset management suite.

AssetPro 3.0 software is electronic data interchange-compliant. The new version has a module for managing an inventory of leased computer equipment. It also has connections between its modules — including the help desk and procurement modules — in provide an enterprise-wide view of a company's total PC assets. These connections weren't available in AssetPro 2.1, the previous version.

AssetPro 3.0 works with a vari-

ety of databases, said Tim Matthews, national director of asset management services at Eason Information Services in Rye Brook,

N.Y. The software runs on IBM's DB2 family and databases from Oracle Corp., Sybase, Inc., Microsoft and Gupta Corp.

Bundle It up

In the next few years, asset management software increasingly will be bundled with services to help large corporations control the rising cost of PC desktops, said Doug Chandler, a senior analyst at International Data Corp. in Framingham, Mass.

The growth of the PC desktop, the increased pressure to upgrade PC software and hardware more often and faster, and the growth of mission-critical applications on PCs have caused increased spending on asset management software and services, Chandler said (see chart).



Source: International Data Corp., Framingham, Mass.

ImageNation Corp. has introduced CX104 Precision Video Frame Grabber.

According to the Beaverton, Ore., company, the product is a card designed for machine vision, industrial control, robotic and security systems. It meets PC/104 standards and features precise imaging, fast access and a digital synchronization scheme.

The digital synchronization scheme ensures operation with standard and resettable cameras and video recorders.

It includes a software package with utilities to automate grab and save operations and can be executed from batch files or the DOS command line. It also includes a C library with source code.

CX104 Precision Video Frame Grabber pricing starts at \$799.

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Product shorts

Contour Design, Inc. has introduced the Contour Mouse, a three-button, PC mouse designed for individuals with repetitive stress injuries. It is available in three sizes and has elevated buttons to support the hand, wrist and thumb. It comes with software that lets users program buttons, define macros and customize the speed of the cursor. Cost: \$60. Contour Design, Lowell, Mass. (508) 937-2422. ... **Maxi Switch, Inc.** has introduced a Windows 95 keyboard, Nova 95/Windows, with rounded corners, an application key for recalling the context menu and two Windows keys for accessing Windows' user interface. Cost: \$32. Maxi Switch, Tucson, Ariz. (509) 746-9378.

Brief

AT&T, Complex team
AT&T Global Information Solutions has selected The Computer Group in Tustin, Calif., to

be the primary return center in the U.S. for AT&T's recently discontinued line of PCs. Complex will receive, test, repair and upgrade all domestic returns of Digital Equipment Corp.'s AlphaStation 600 Series workstations.

The AlphaStation 600 Series workstations are typically sold

for Digital Equipment Corp.'s AlphaStation 600 Series workstations.

The AlphaStation 600 Series

workstations have an estimated cost of \$449. EnviroScan 4C costs \$899.

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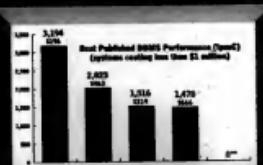


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NOTES 4.0 GETS A
THUMBS-UP, 54

Workgroup Computing

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Good medicine for re-engineering

Plan ahead, but be flexible in implementing

By Tim Ouellette

Information systems managers face a couple of choices when trying to automate their company's business processes.

While some draw up a complete plan with the help of outside consultants, others look to jump right in and change things as they go.

Both users and analysts seem to agree that a little dose of both is the best medicine: Do some up-front planning, but be flexible in carrying out the plan.

"What we ended up with was not much like our original plan, and it was a lot better," said Frank Manci, documentation coordinator at Colonial Savings, a Fort Worth, Texas, mortgage and loan firm. The company found that "the process evolved in the course of discovering the full capabilities of the workflow software," he said.

Workflow software automates and tracks the movement of work items throughout a company and lets users measure the productivity of the work process.

Experts agreed with Manci's assessment. "It is virtually impossible to

predict how workflow will affect the organization," said Carl Frappollo, executive vice president at Delphi Consulting Group, Inc., in Boston. "You have to do the planning up front, but you are only fooling yourself that you won't have to address the issue again later."

Using business modeling software is one way to make the initial planning process a little easier. For example, Newton, Mass.-based Clear Software, Inc.'s Clear Process lets users diagram a process, then measure the cost of changes on an integrated spreadsheet. The spreadsheet is compatible with Microsoft Corp.'s Excel, so further data analysis can be conducted.

Integrating the models

Just developing the business model isn't enough, however. An important step is how to get the models into workflow systems so that the process starts automatically, without a lot of complicated and often expensive programming.

Workflow vendor FileNet Corp. in Costa Mesa, Calif., has links to Meta Software, Inc.'s planning software to solve this problem.

Before or after		
There are pluses and minuses to re-engineering before installing workflow software vs. digging right in. Most say a combination of the two works best.		
PROMISES BETTER BUSINESS PROCESS RE-ENGINEERING BEFORE INSTALLING WORKFLOW AUTOMATION SYSTEMS	Provides complete map of a process	Often requires an outside consultant
MORE INTEGRATION WITH THE FIRM'S EXISTING SYSTEMS	More structure, so users know what they should expect	Harder to handle sudden changes in the workflow
IMPROVED FLOW OF INFORMATION AND DECISIONS	Faster response to changes in the company	Less structure to the initial installation
IMPROVED MANAGEMENT FEATURES TO REVIEW WORKFLOW PERFORMANCE	Good for managing parallel tasks	Requires strong management features to review workflow performance

Meanwhile, IBM is trying to tie its upcoming modeling tool — planned for the first half of next year — to its Flowmark workflow package. And Alameda, Calif.-based Viewstar Corp.'s recent release has an integrated modeling tool called Process Architect.

Frappollo said some companies buy a less expensive workflow package, test it out in a pilot project to find out what they need, then throw out the product and buy what they really want.

Some companies could do this by accident if they don't take a good look at what they need beforehand, he said.

"If you look at the process first, you don't have to spend all the money" correcting it later, said John Burris, senior systems analyst at Glaxo, Inc., a pharmaceutical company in Durham, N.C.

For example, before installing a workflow system at General Star Management Co., managers "spent a lot of time with people in our different branches talking about how the people did their jobs," said Adin Tsooker, vice president of marketing and administration at the Stamford, Conn., insurance company. "So we had redesigned the workflow by ourselves beforehand."

SunSoft hits the 'net Pronto

PC-NFSpro 2.0 includes Netscape's Navigator, CommTouch's Pronto E-mail

By Jean S. Bonman

SunSoft, Inc.'s enhanced version of PC-NFSpro Version 2.0, Mountain View, Calif.-based SunSoft is one step closer to providing enterprise-wide electronic-mail links for PCs.

PC-NFSpro Version 2.0, which SunSoft announced and shipped this month, incorporates Netscape Communications Corp.'s Navigator Internet browser and CommTouch Software, Inc.'s Pronto E-mail package. It can exchange data files with many types

of Unix systems and one-Unix servers running Network File System (NFS) file server software.

The Pronto package supports multimedia E-mail through its use of Multipurpose Internet Mail Extensions, Simple Mail Transfer Protocol and Microsoft Corp.'s Messaging Application Programming Interface E-mail standards, analysts said. Pronto replaces the older SunSoft E-mail for Windows package that came with PC-NFSpro 1.1. Users now can drag and drop Windows documents and attach them into corporate E-mail attachments into corporate E-mail, SunSoft officials said.

New features of SunSoft's PC-NFSpro Version 2.0

- Netscape's Navigator 1.2.2 Internet browser
- SunSoft developed Internet-ready news reader
- CommTouch's Pronto E-mail package
- Support for Windows 95 clients
- Allows Windows PCs to act as NFS file servers
- Pronto at \$999, with volume discounts for five or more licenses

Suo intends to put as enterprise spin on its PC-LAN file-sharing products, said Rick Villars, a networking analyst at International

Data Corp. (IDC) in Framingham, Mass. "More and more corporations are hitting the wall with their current E-mail products, like IBM/Lotus' Notes and Microsoft Mail," he said. "They're looking for a product that has more reach, like an Internet mail program."

IDC analysts said PC-NFSpro competes with TCP/IP packages for PC-LANs sold by Novell, Inc., FTP Software, Inc. and NetManage, Inc. SunSoft sells its PC-Admin LAN administration software as an optional server license for \$2,250.

Remote management

Beta user Bill Quayle, a senior systems administrator at Rockwell Telecommunications in Downers Grove, Ill., said his firm uses PC-NFSpro 1.1 to link about 20 Sun Microsystems, Inc. Unix workstations to about 600 PCs.

DECEMBER 18, 1995 COMPUTERWORLD

Quayle said he plans to use the new PC-based NFS server feature to manage remote PCs from a central Windows PC console and to ship centrally stored DOS applications to end users.

Ed Smitsmark, information systems manager at Summa Four, Inc., a digital switching company in Manchester, N.H., said he likes the new Internet access from PC-NFSpro. "We were looking at using Mosaic off the 'net, but now we have a real browser included with the product," he said. The beta site has four Sun Unix servers and nearly 80 PCs. It also bought two 100-user PC-NFS upgrade licenses for about \$3,500, Smitsmark said.

But Smitsmark said he misses one corporate computing feature — the global address book. This was in PC-NFSpro 1.1's E-mail package but isn't yet available in Version 2.0's Pronto, he said.

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Enhanced Notes 4.0 gets thumbs-up

Feature-filled update includes new interface and improved replication engine, but performance and size a problem

By Kevin Tofly

By packing the soon-to-be-released Notes Version 4.0 with new end-user features and significant enhancements, Lotus Development Corp. has provided a package that should persuade serious Notes users to migrate as quickly as possible.

Notes 4.0 is scheduled for availability by year's end.

The release is check-full of updates, but there are four areas that are particularly significant: user interface, replication, size—or bloat—and performance. This review looks closely at these areas in relation to the client side of the Notes 4.0 beta release. Users may welcome the broad new interface and the more efficient replication in Notes 4.0, but

they may be disappointed by the performance.

User Interface

Cambridge, Mass.-based Lotus has given Notes a radical face-lift. Depending on your point of view, you will either stand up and applaud or stay in your seat and mutter, "It's about time." I belong to the latter group.

As someone who has used earlier versions of Notes for several years, I've always found the Notes graphical user interface to be odd and only quasi-innovative. Version 4.0 brings Notes up to date and in line with the best Windows applica-



Review

tions. The main Notes database window is divided into panes. Views and other objects can be accessed by clicking on names without having to resort to pull-down menus. Users also can create folders (i.e., subsets) of documents that allow quick access to particular documents.

A new preview pane lets users browse documents quickly. This feature is a real time-saver. Along with this, a "mark as read when previewed" option lets you remove the "unread" flag as you browse through documents. This lets you stay current with new documents without having to open every one. These features alone are enough to make me a Version 4.0 convert.

The user interface for replication that will hit the market, Dempsey said, "User experiences with similar operations should show similar or better performance." He qualified that by noting that several enhancements to the user interface should help users complete tasks faster even if some processing seems to take longer.

Lotus responds

On performance: Tim Dempsey, Lotus' director of Notes marketing, said performance tuning for a product such as Notes isn't done until late in the development process. He also said code used for debugging is likely to have hampered performance in the test-build version. This code is scheduled to be removed before Notes 4.0 goes into general release.

Of the finished version that will hit the market, Dempsey said, "User experiences with similar operations should show similar or better performance." He qualified that by noting that several enhancements to the user interface should help users complete tasks faster even if some processing seems to take longer.

On size: Dempsey said the final version should be much leaner than the 62MB test-build, although it is likely to take up more disk space than Notes 3.3 because of the enhancements. He also said developer code remains an integral part of Notes.

Easy modification of replication parameters will make the process significantly less intimidating to average end users. This organization-by-function approach is much more appropriate than the way replication was handled in previous releases, where it was buried within each database.

Replication

The replication engine received a major overhaul. Of critical importance is the ability to replicate individual fields. Previously, if only

a single field of, for example, 5 bytes changed, the entire document was replicated. This could mean thousands of unnecessary bytes transferred across the network for each document that needed replication. Now, only the fields that are changed are transmitted during replication.

Users always have been able to replicate only a subset of a database's documents using a Notes selection formula. But I challenge anyone to find a user who is comfortable with coding a Notes formula. Now, via the point-and-click replication interface, users can specify a view or folder to use as the basis for replication. Only those documents that fit the selection criteria of the view or folder will be candidates for replication. This translates into performance benefits for users.

On the server side, Version 4.0

Notes 4.0's new interface divides the database into panes. Users can review objects by clicking on them instead of using pull-down menus.

boasts a new, multithreaded replication engine. While we haven't tested the claims, Lotus said this enhancement will improve overall throughput by allowing multiple replications to be executed simultaneously.

Sure.

Passthrough lets users dial in to a Notes server and "pass through" to replicate databases residing on other Notes servers on the same network. Without this, users need to dial each server individually. It is about time Notes provided such a feature.

Size

Notes 4.0 is a disk drive barn's dream come true. The 32-bit client "standard" consumes about 60M bytes of disk space. Dispensing with help files, documentation and templates brings you down to around 30M bytes. This is up from a mere 12M bytes required for the base program files in the Version 3.33 16-bit Windows client.

Lotus continues to include the developer code in the standard client edition. Lotus proudly reminds us of this in the "Notes Version 4.0 Reviewers Guide," but I think Lotus should be ashamed of it. This code is nothing but excess baggage for the 95% of users who aren't developers. At the very least, Lotus should give users the option not to load the developer's

based desktop PCs — a midrange 60-MHz system and a high-end 133-MHz machine — showed negligible improvement over Test Build 2. But some key functions, such as initializing Notes and opening databases, still can take two to three times longer in 32-bit mode, even on the high-powered machines. And index creation actually ran slightly faster using Version 4.0's 32-bit code.

We can only hope that Lotus gets the message and moves performance to the top of its hit list. With performance even remotely similar to that of the Version 3.33 client, Notes 4.0 is a wise winner. However, if the production version arrives without significant performance improvements, the Notes 4.0 story might not have such a happy ending.

Tony is president of The Tally Group (<http://www.tally.com>), an information technology testing firm based in Manassas, N.J. He can be reached at ktally@tally.com.

How the test was conducted: a behind-the-scenes look

Computerworld conducted The Tally Group to evaluate the beta version of Notes, incoming on windows and servers. The test build delivered to us had 5,300 other people's Version 4.0 Test Build 3.2 (Test Build 3), dated Oct. 9. The Tally Group spent several weeks evaluating the function and performance of the 32-bit Windows 95 client. Tally then conducted follow-up evaluations using

Test Build 3, which was released earlier this month.

This review focuses primarily on the visual and functional improvements offered to end-user Windows 95 clients.

Note that there are many new and enhanced features that can be captured. In-depth performance testing can't be done until after the production software is released.



Enterprise Networking

INTERNETWORKING • SERVICES • NET MANAGEMENT

Cisco routers \$ave

By Bob Wallace

Users are looking to an emerging breed of network access devices to slash wide-area network costs.

And Cisco Systems, Inc., the router market leader, has recognized this trend and introduced remote office routers that handle a few protocols and perform frame-relay access device (FRAD) functions.

Routing and FRAD together mean a network manager at a bank, for example, can combine traffic from a LAN, automated teller machines, building security units and teller terminals at branch sites for transmission over one frame-relay network to a central site.

At least one user has reaped the benefits these products provide.

"We're already using Motorola equipment to take different types of traffic and send it over our one frame-relay network," said Tom

Balzarini, enterprise network manager at Associated Grocers, Inc. in Seattle. Data from cash registers, PCs and 3270 devices at the cooperative's 285-plus stores travels over a multicarrier frame-relay network to the data center at Associated's headquarters. "It just didn't make sense for us to run multiple store [data] networks."

Double duty

"Router vendors are rushing to build FRAD functions into routers, while FRAD vendors are looking to add routing to their FRADs," said Lisa Henderson, a broadband consultant at TeleChoice, Inc., a Verona, N.J., consultancy. She said many vendors sell devices that do both.

The new Cisco products were designed to offer users a low entry cost with scalability.

At the low end, Cisco offers its 2500 remote office router with Cisco FRAD software that enables multiple serial devices, but not a LAN, to pass data over a frame-

Pricing for Cisco's multifunction routers

Router/FRAD	
Cisco FRAD	\$1,595 to \$3,995
LAN FRAD	\$2,195 to \$4,695
Multiprotocol router/FRAD	
2520	\$1,695
2521	\$2,495
2522	\$3,495
2523	\$3,995
Router/hubs	
2518	\$4,695
2519	\$5,995

relay WAN.

The vendor also offers the 2500 router with LAN FRAD software that adds LAN support and routes IP and Novell, Inc.'s IPX protocols.

Cisco, page 60

NetFrame SMP serves high price Groupware, messaging apps targeted

By Michael Goldberg

NetFrame Systems, Inc. last week unveiled a Windows NT version of its fault-tolerant symmetrical multiprocessing (SMP) server for LANs.

But users and analysts said NetFrame will face questions about whether the fault tolerance offered in its computers is worth the premium price.

Jeff Barkan, research director at Gartner Group, Inc. in Stamford, Conn., said NetFrame offers the highest level of fault tolerance of any LAN server running the Windows NT operating system, but it costs about twice that of a Compaq Computer Corp. box.

"The question is still one of market demand," Barkan said. "Are users willing to pay that difference?"

At least one might. Publishers

Printing, Inc. uses NetFrame servers running Novell, Inc.'s network operating system to support a high volume of file and print services. Now the company is moving to Windows NT and looking into the NetFrame NT servers.

Worth the price?

Another user, Allen Skaggs, network operations supervisor at the Ohio Department of Human Services in Columbus, said he plans to test-drive the SMP model for its potential processing power. Skaggs said he is willing to pay a premium for NetFrame's fault tolerance and the firm's strong on-site service record at his agency.

The SMP ClusterServer scales to as many as four Pentium processors and can support up to 1,000 end users connected via a LAN, according to NetFrame officials in Milpitas, Calif. The systems, sold through resellers and distributors, start at \$13,900 for a two-processor model with 64M bytes of RAM.

NetFrame officials said they are targeting Windows NT servers at businesses using groupware and messaging applications along with internal corporate World Wide Web sites. NetFrame also is looking to cater to publishers, government agencies and medical offices where LAN users require high availability.

NetFrame's SMP ClusterServer

OPERATING SYSTEMS SUPPORTED:
Microsoft's Windows NT
Novell's NetWare

PROCESSOR:
500-MHz Pentium

SCALABILITY:
Two, three or four processors,
each with fault-tolerant
backups

STARTING PRICE:
\$31,900 for two processors
with 64M bytes of memory

Computer/phone finds its voice

By Neal Weinberg

Computer/telephony integration (CTI) holds out the promise of reduced network administration costs, easier troubleshooting and advanced messaging features.

Virginia Brooks, president of Aberdeen Group, Inc., said computer/telephony is such a new field that there are no market leaders yet. But she predicted CTI will become a hot area as companies see the value of merging their networks.

Canadian private branch exchange (PBX) maker Mitel Corp. Oct. year plans to introduce several products designed to

interest users in the technology.

Mitel in Kitchener, Ontario, is building a product line that leverages its telephony software skills with Digital Equipment Corp.'s Alpha-based server platform and switching technology from Lucent Data Communications Ltd. in Israel.

CTI may conjure up visions of a strange, hybrid unit that is half phone, half PC, but Mitel's approach is to leave the desktop essentially untouched. It handles integration at the server level through a single box that runs voice and data networks.

This setup was designed to let a remote user dial in to the system and receive all

voice, fax or electronic-mail messages.

Robert Goguen, director of computing and communications at the University of Ottawa, is testing a Mitel CTI application in the school's call center. The application automatically brings up real-time information on the PC screen based on the telephone number of the incoming call.

Goguen said Mitel's products will let him connect his telephone PBX with the school's data system, which will simplify network administration and troubleshooting. The products also will let him create "a more sophisticated network" that may offer enhanced messaging features.

Mitel and Lucent are developing an Asynchronous Transfer Mode-ready backbone based on Synchronous Optical Network technology. The 155M bit/sec. backbone would be able to carry voice, data and video.

Mitel's CTI products haven't hit the market, so it is too early to tell if they will be successful. But Brooks said, "They understand the computer end of it, and they understand the telephony end of it, and I think that gives them a real advantage."

With a little help from its friends

The following are Mitel's key alliances:

Company	What they are developing	Expected to ship
Digital Equipment	Computer/telephony integration server	Summer 1995
Lucent Data Communications	Broadband computer/telephony integration backbone	September 1996



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THE PAGE

November

12
Sunday

It's the World Wide Web at the holidays, a twisted, crazy mix of adrenaline and frustration. This year I tried to do my Christmas shopping on the Web. After eight hours on-line, I had to shell out a \$13 toy bank and a column. Your gift is the column.

A keyword search on "shopping" in Lycos (<http://www.lycos.com>) yields 17,118 documents. I start with the 43 merchants on the Internet Shopping Network. Hammacher Schlemmer fea-

tures a pair of sheepskin slippers my Dad would like. I push the "buy" button and learn that I can buy only if I call an 800-number Monday through Friday between 8 a.m. and 5 p.m.

Next stop is the Internet Shopping Mall (<http://www.i4free.net>). Here I can buy my loved ones a UFO newsletter, a pocket pager or an appointment with a singles service. The only possible holiday gift is a skylight, but I can't figure out how much wrapping paper to buy.

November

24
Friday

On Yahoo (<http://www.yahoo.com>). A search on "toys" leads to the ultra-cool Dr. Toy's Guide to the best children's products (<http://www.drtoy.com>). But I can't order on-line, which is my goal.

I switch to Marmel Gifts and Toys of Farmington Hills, Mich., (<http://www.marmeguide.com/marmel>), which takes orders on-line. A click on "Odds and Ends You Can't Live Without" in "Smashed Can Art" I can live without it. This store offers many items on-line but has photographs for

only a few of them, and I want to see what I buy.

You can't go wrong with food. Searching for "gifts and eats" on Lycos returns 11,306 documents. Fortunately, only 3,610 of them are about meat. Item 19, "Holiday Gift Suggestions ... at Basket Mania," draws my attention. I click and get a "URL Not Found" message. The holidays are hard on all of us.

Griffith Chocolates (<http://chocolate.com/chocolate>) will let me order chocolate over the Internet for \$28 but doesn't tell me how much chocolate I get for \$28. Call me a stickler for details.

November

29
Wednesday

A sporting goods store on Internet MCI (<http://www.internetmci.com>) advertises "the coolest stuff on-line," but a search for a warm-up suit turns up only one, for \$124. I search for "Celtics" and get a response that my search is too general. Maybe it thought I meant the Cleveland Celtics.

I hit paydirt at Lillian Vernon (<http://www.internetmci.com/marketplace/lvveron/>). An \$19.98 personalised ballerina towel looks perfect for my second cousin. I proudly add it to my shopping basket, but the system quickly informs me that "the at-

tribute combination for the item you requested is not available." Done in by improper attributes.

But the visit isn't a total waste. I buy a bank for my son. Checkout and payment goes flawlessly. After five hours, I have purchased a \$13 gift. Success! Energized, I surf to the MCI Marketplace search screen and type "toys." White Rabbit Toys in Ann Arbor, Mich., (<http://www.toystore.com/WRT.html>) has a great puzzle for toddlers, but when I click to order, I learn, "Our server died suddenly. We will not be able to process orders using this form until Friday, Dec. 1, 1995."

December

4
Monday

Last-ditch effort. I check out the MegaMall (<http://infotique.ln.com/megamall.html>) and its Christmassy, modem-intensive home page.

MegaMall has more than 140 stores, though only a few are holiday variety.

Nearly a dozen merchants sell clothing that ranges from bikini to Italian ties but with a preponderance of T-shirts.

America's Shirt Catalog (<http://www.ai.com/shirt/shirt.html>) takes electronic orders for a

wide range of shirts and ties at discount prices. I don't buy, but I tag them away for my own future use.

Conclusion: Shopping on-line "wef" come of age this year, and it won't for at least a few years. Internet malls are harder to navigate than catalogs, and seek design and inconsistent quality often makes them look amateurish. But the potential is there. And merchants such as those I've mentioned above deserve credit just for trying.

—Paul Gillin

http:

Surf 'til you drop

No one is saying whether Santa will be able to ship down an ISDN line or whether you'll find on-line shopping interesting. Nevertheless, we present a selection of the more intriguing on-line stores and malls for the World Wide Web holiday shopper.



■ ■ ■ The Canterbury Shoppe, at <http://www.starwaveinc.com/canterbury/items.html>, makes gift suggestions, including a clipboard made from old motherboards (\$54) and a fish-shaped corsair imported from England (\$32).

■ ■ ■ If you have something bigger in mind, try Beta Australia, at http://www.cyberzone.com.au/beta/home/mall_z.htm. This company sells aircraft, real estate, bodybuilding gear and even long-distance telephone services.

■ ■ ■ The Megamall of Music and Video contains — you guessed it — lots of music and video. Browse several independent stores at <http://infodudes.ln.com/musicvideo.html>.

■ ■ ■ Shop.com hosts several stores, classified by the products they sell. Check out the Atlanta Chip Co. under Yummy Shops, for example, or The Used Software Exchange under Silicon Shops. Surf to <http://shop.com/shops.html>.

■ ■ ■ Does someone on your list dream of warm Hawaiian breezes? For \$35.50 you can send a package of "Kauai Kookies" or a pound of "Molokai Muileiskinner" coffee for \$16.95 from Island Gifts Direct at <http://www.state.net/~angels/ianes.html>.



■ ■ ■ The Internet Plaza Holiday Gift Guide suggests tons of items for \$35 or less. The BedtimeMaster Putting Cup (\$9.95) might be just what the doctor ordered. Find other games, stickers, CD-ROMs and T-shirts at <http://plaza.wor.com/plazastore/-holiday/index.html>.

■ ■ ■ Buy a 6- to 8-pound, spiral-sliced honey-glazed ham (\$39.95) from Smithfield Farms at http://dwags.ast.usabeps/Smithfield_Farms. The on-line meat store offers hams, turkeys and sausages in various cuts and flavors that are "perfect for any occasion." Who's to argue?

—Kim S. Nash

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Reporter's Notebook

Web wanderings

By Mitch Wagner
SAN JOSE, CALIF.

While attending Datapoint, Inc.'s conference last week on doing business on the Internet, my mind flashed back to what it was like being 15, living in the suburbs and contemplating getting a driver's license.

All of us adolescents were convinced that a great world would open up to us once we could drive. We had no idea of the specifics, but we knew it was coming soon and that it would change our lives permanently, drastically and for the better.

Last week's Internet crowd, like us longago drivers wanna-bea, was religiously enthusiastic about the benefits technology will bring but not exactly sure how it will happen or why. That's not a criticism; even experienced net users admitted they are still feeling their way along.

"We don't feel like we know anything about it," said Mark Alcorn, assistant executive director at the California Dental Association in Sacramento, which runs a Web site funded by advertising from dental equipment makers. "But we know we need a good strategy because in five years if we're not doing it for our members, someone else will. And we don't want that."

Nonetheless, speakers at the conference discussed what has worked and what hasn't in this infant industry.

"One of the things that needs to happen is that people need to be connected to the 'net,'" said Datapoint analyst Allen Weiner. An on-line application must be an order of magnitude more fun and easier or more flexible to get people to stop performing the same function in the real world and move the task to cyberspace.

On-line sales have largely failed to meet that test. Growth in that area has been slow. "I don't know about you, but I still find it easier to pick up a phone and call for my pizza," said Rose Ann Gordano, vice president of the Internet Business Group at Digital Equipment Corp.

But banking is likely to do better. Some predict it will be the "killer app" that will make prior net growth appear lethargic.

Banks will be able to cut back on staffing, buildings investments and other expenditures. Consumers, meanwhile, will have convenient access to all their banking functions from the comfort of their own homes.

"Banks are trying to put themselves out of the brick and mortar business," Weiner said. "They're trying to get you to stay out of the bank."

Cisco

CONTINUED FROM PAGE 55

And at the higher end, Cisco debuted the 2530-2523 routers, which include the above-mentioned features and Apple Computer, Inc.'s AppleTalk, Digital Equipment Corp.'s DECnet and Bayan Systems, Inc.'s Vines.

Lots of links

The 2530-2523 machines also offer many WAN ports that can connect to services beyond frame relay, namely Integrated Services Digital Network, Basic Rate Interface, leased lines and asynchronous dial-up links.

The number of WAN ports means users can build in disaster recovery options. For instance, they could use a frame-relay port to link to a synchronous dial-up backup setup.

The units also offer high throughput by using 4-to-1 data compression.

Enterprise Networking

Dewescon Electronics Ltd. has introduced Orbiter 7500, an Ethernet switch.

According to the Saskatoon, Saskatchewan, company, Orbiter 7500 helps users eliminate LAN congestion by segmenting the network. It is a replacement for Ethernet hub products installed with Ethernet LANs.

Orbiter 7500 includes eight 10Base-T ports, full wire speed on all ports and up to four virtual LANs. It features address learning and aging, Simple Network Management Protocol and Telnet network management. It includes flash memory for downloading software.

Orbiter 7500 costs \$3,200 for an eight-port switch.

► **Dewescon Electronics**
(786) 933-3200

CSS Laboratories, Inc. has unveiled MaxPro 1500 and MaxPro 800, two file servers for LAN and WAN applications.

According to the Irvine, Calif., firm, MaxPro 1500 is a high-end server with 12 removable 5½-in. half-height disk drive bays and three internal 3½-in. disk drive bays. It has a dual, hot-swappable 300-watt power supply. It can be configured as an integrated RAID server or CD-ROM-based server.

The MaxPro 800 was designed as an entry-level server. It features six 5½-in. half-height disk drive bays and two internal 3½-in. disk drive bays. It also has a dual, hot-

swappable power supply.

Both servers include on-board integrated drive electronics and floppy-drive controllers and 16M-byte, single inline memory modules that can be expanded to 384M bytes. Both servers can be configured with 256K or 512K-byte secondary cache memory.

Pricing for the MaxPro 1500 starts at \$7,800; the MaxPro 800 starts at \$6,800.

► **CSS Laboratories**
(714) 852-8161

Rockwell International Corp. has introduced the 2340-TX Multiport Adapter.

According to the Santa Barbara, Calif., company, the new adapter is a quad-speed Ethernet adapter that combines four switched 10M or 100M bit/sec. Fast Ethernet interfaces into one card that requires a single Peripheral Component Interconnect local bus slot. The 2340-TX was designed to eliminate the bottleneck at the server that occurs when data from multiple network segments travels through a single connection to the server.

The 2340-TX offers 10M- or 100M-bit autosensing for dynamic detection between 10Base-T or 10Base-TX hub connections.

The 2340-TX Multiport Adapter costs \$595.

► **Rockwell International**
(805) 963-4262

Cylink Corp. has introduced SecureGate-16, a remote access server.

According to the Sunnyvale, Calif., company, SecureGate-16

gives users secure dial-up access to enterprise networks. It was designed for small businesses and can accommodate 16 simultaneous authenticated and encrypted remote dial-in sessions. The product is expandable and provides a single point of control, a single point of network entry and a single audit and report source for the enterprise.

SecureGate-16 runs on a Sun Microsystems, Inc. SPARC4 system and is available in a turnkey configuration with SecureGate software and an embedded relational database.

Pricing for SecureGate-16 starts at \$31,500.

► **Cylink**
(408) 735-5809

Ocean State Publishing Corp. has announced Web Whiz, a tool for home page design on the World Wide Web.

According to the Woonsocket, R.I., company, Web Whiz contains more than 2,000 graphics files, two HyperText Markup Language (HTML) editors, two Web browsers and HTML reference materials. It was designed to let users create a home page from a PC.

Web Whiz features professional graphics including stylized buttons, icons, dividing lines, symbols and background textures. It also includes tutorials and guides.

Web Whiz requires a PC with Windows 3.1 or Windows 95, 4M bytes of memory, 1M byte of hard disk space and a CD-ROM. It costs \$25.

► **Ocean State Publishing**
(401) 787-3778

Briefs

MFS gains access in California

Pacific Bell and MFS Communications Co. have reached an agreement whereby Pacific Bell will sell the use of its local loop to MFS. But don't look for MFS' entry into the local market to result in lower prices; the companies have agreed that MFS will match existing Pacific Bell rates.

AT&T reframes relay pricing

AT&T recently announced a new pricing structure for its frame-relay disaster recovery option. The new scheme reduces monthly fees and kicks in only when there is an actual disaster.

Spec boosts app management

The Desktop Management Task Force recently enhanced its specification for managing network-based applications. Version 2.0 of the Software Management Information File addresses such functions as file lists, location data, network dependencies, maintenance and support. A software developer's

kit is free on the task force's World Wide Web server at <http://www.dmtf.org>.

Spectrum converges

The network management platform from **Continentel Systems, Inc.** is on its way to maintaining more than data connections. The Rochester, N.Y., company is adapting Spectrum to manage broadband cable transmission devices and previously unsupported Asynchronous Transfer Mode gear for Boston-based **Continentel Cablevision, Inc.** The joint customization effort will extend the network modeling capability of Spectrum's object-oriented "knowledge base," which soon will address the needs of telephone network management.

Bay, ADC kentrox link up

InterNetworking beneath **Bay Networks, Inc.** and **AT&T** wide-area network access products vendor **ADC Kentrox** signed a technology and joint marketing agreement

designed to enable the extension of ATM across WANs. Bay will jointly market ADC Kentrox's ATM Access Concentrator 3 product set, which aggregates and transports voice, video and data along with other ATM and non-ATM traffic at link speeds ranging from 56K to 155M bit/sec. across a WAN.

Cabletron, Novell connect

Cabletron Systems, Inc. and **Novell, Inc.** signed a letter of intent to jointly develop and market integrated communications and network products and services.

Computerworld opens up Escon

Computerworld, in Pittsburgh recently announced the Virtual Mainframe Channel 820, a stand-alone channel extension system that lets users link mainframes using a variety of high-speed WAN links. The offering includes an ATM interface, a 45M bit/sec. High-Speed Serial Interface (HSSI) with 5-to-1 data compression and an Escon interface. The package will ship in Jan. 31, with pricing starting at \$80,000 for one parallel and one HSSI interface.

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 65 Communications/Systems/Public Utilties
 73 Mining/Construction/Utilities/Petroleum/Agri.
 96 Manufacturer of Computers/Computer Components/Peripherals
 98 Systems Integrators, VME, Computer Services
 99 Business Services/Consulting Services
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 24 Dir. Mgr. Sys./Development, Software Applications
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 64 Computer Systems/Software/Consulting
 65 Communications/Systems/Public Utilties
 73 Mining/Construction/Utilities/Petroleum/Agri.
 96 Manufacturer of Computers/Computer Components/Peripherals
 98 Systems Integrators, VME, Computer Services
 99 Business Services/Consulting Services
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 (d) Windows
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 (i) Microsoft NT
 (j) Windows
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Large Systems

HARDWARE • SOFTWARE • CORPORATE STRATEGIES



The Sagamore, a resort on Lake George in Bolton Landing, N.Y., has installed a property management system to help attract off-season customers through the use of sophisticated guest history software.

Hot hotel system nips Jack Frost

SMS/Host software aids off-peak bookings

By Thomas Hoffman

Ever wonder what happens during the winter months to that resort where your family likes to stay its summer vacation? Many proprietors batten down the hatches when Jack Frost arrives, head south until the spring thaw.

Other resorts, such as The Sagamore in Bolton Landing, N.Y., remain open all year. But it can be a real challenge for larger hotels to carry a pre-filled drumming the long, cold winter months — even with a skeleton crew.

To help generate additional business during its off-peak season — November through April — The Sagamore earlier this year installed a property management system. The Unix-based SMS/Host system is from Springer-Miller Systems, Inc. in Stowe, Vt. The Sagamore runs the software on an IBM RS/6000. The system handles all front-and back-office functions, including guest histories and correspondence.

As it heads into the holiday season, the resort on Lake George has launched a search of its 25,000-name customer database to pinpoint which of its patrons will receive its yearend promotions. A visitor from California isn't likely to visit the spa during winter, so the system eliminates that name, according to Robert McIntosh, managing

director at The Sagamore.

That is something the hotel couldn't do before. The Sagamore had been using a decrepit Hotel Information Systems' package that ran on an antiquated IBM 360 machine. "We were terrified that the system was going to crash, and it wasn't designed for guest history marketing," McIntosh said.

A Sagamore clerk can use the SMS system to set up a guest's golf tee times, dinner reservations and massacre appointment points with a single telephone call — a set of tasks the former system couldn't perform.

It is too early to quantify the merits of the SMS system, McIntosh said, because it has been in use for only nine months.

The Sagamore's information technology strategy maps what is happening throughout the bustling hotel industry, experts said. "This is a service-oriented industry, and one of the major trends right now to capture repeat business is the use of sophisticated guest history systems," said Richard Moore, an associate professor of hotel information technology at Cornell University's School of Hotel Administration in Ithaca, N.Y.

McIntosh said he hopes things work that way at The Sagamore. "Some of our summer guests have never been here in the winter, so we're hoping the system will help us fill vacancies during nonpeak periods," he added.

IBM opens door to midrange NetWare

By Craig Stedman

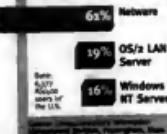
Running NetWare on the AS/400

It may seem like a hypothermia-driven delusion straight out of Rochester, Minn., the frigid home of IBM's midrange system. But it is about to become reality, and the idea is making many AS/400 users warm all over.

IBM this Friday will ship a board-level file server for the

Heart of the market

In addition to AS/400, what other operating system are you running?



AS/400 that supports Novell, Inc.'s LAN software. The company's embrace of NetWare should greatly improve IBM's chances of selling the 495-based internal server, which has run only the company's OS/2 LAN software since it became available early this year.

Even in IBM-friendly AS/400 shops, LAN Server eats NetWare's dust (see chart). Several customers said the ability to put their NetWare installations under AS/400 control promises enticing dividends. The internal server lets AS/400 running business applications also handle file and print sharing, without putting an added burden on the main processors.

Companies can kick away at hardware costs by cutting out PC server middlemen, and the AS/400 is more reliable and easier to manage than PC-based file and print engines, they said.

"With the AS/400, our unplanned downtime is getting close to zero," said Jim Gandy, director of operations for the AS/400 division at IBM.

IBM opens up, page 68

PC-to-host options grow

By Craig Stedman

Customers looking to tie 32-bit Windows desktops to their IBM mainframes and AS/400s are starting to get a smorgasbord of PC-to-host connectivity choices.

Wall Data, Inc. plans by year's end to ship Windows 95 and Windows NT versions of its Rumba Office connectivity software. IBM will follow suit early next year with its

Personal Communications family for Windows 95. IBM then will add native 32-bit support for NT during the second half of next year.

With Wall Data and IBM stepping forward, the Top 3 vendors of mainframe and AS/400 connectivity software will have 32-bit Windows products available. Market leader Attachmate Corp. shipped a version of its Extra software for PC-to-host, page 68

See how we are

A status report on software for connecting 32-bit Windows desktops to IBM mainframes and AS/400s

VENUE	PRODUCT	AVAILABLE
ATTACHMATE	Extra Personal Client 6.0	Shipped Oct. 31
IBM	Personal Communications 3270/5250 Client Access/400	Q1 1996
NETSOFT	NS/Elite and NS/Router	Not announced
WALL DATA	Rumba Office 95/NT	Shipped Dec. 1 for Windows 95 and Windows NT
WRQ	Reflection 3270 and AS/400	Late December Q2 1996

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Dr. James H. Goodnight
President, SAS Institute Inc.

1

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3

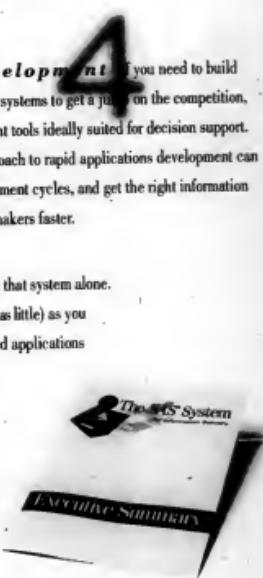
Applications Development If you need to build decision making into customized systems to get a jump on the competition, count on applications development tools ideally suited for decision support. Count on ours. Our iterative approach to rapid applications development can shave months off of your development cycles, and get the right information into the hands of your decision makers faster.

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IBM opens up

CONTINUED FROM PAGE 65

to zero," said Scott Plumer, director of platforms and integration services at Gannett Co. in Arlington, Va.

Gannett plans to start slowly with the AS/400 server unit, which is called the File Server I/O Processor (FSIOP). The NetWare version initially will be installed at a 50-user site to make sure it meshes with the AS/400's file system, Plumer said. The newspaper chain also is interested in a follow-on FSIOP that will add support for Notes applications in the first half of next year.

Adventist Health System West, a hospital chain based in Roseville, Calif., also wants to be an early user of the NetWare FSIOP. Adventist's PC networks are 100% NetWare, said Joe Voloshin, systems director at the company. The company has the OS/2 LAN Server FSIOP, "but it's acting more

like a Token Ring card" to connect PC servers to the AS/400 than a file and print server for desktop users, he said.

Still, some AS/400 users are skeptical about the value of the FSIOP. "If the AS/400 is down, my network is down. I can't afford to do that," said Jim Belter, manager of technical support at Werner Enterprises, Inc. in Omaha.

Bill Downes, director of information services at Sega of America, Inc. in Redwood City, Calif., said he is waiting for IBM to cough up a version of the FSIOP for Windows NT Server, the Microsoft Corp. operating system that is becoming a serious alternative to NetWare.

IBM is mulling an NT port but is wrestling with "resources, timing and priority," said Mark Ryan, vice president of marketing at the AS/400 Division. IBM is focused mainly on finishing a new family of PowerPC-based AS/400s, so analysts don't expect to see an NT-enabled FSIOP until 1997.

steps," he said.

But Griffith added that J. D. Edwards also plans to test the 32-bit connectivity products from Attachmate, IBM and Netsoft before Windows 95 or Windows NT is rolled out to the bulk of its end users next year.

Wall Data's notebook approach lets companies design targeted user interfaces for different departments. Attachmate, on the other hand, used more of a wide-open Web browser orientation in its Extra Personal Client 6.0 software.

Attachmate software includes a bookmark feature for accessing host sessions. It may be more in tune with technically savvy end users, while Rumba Office should be easy on the less adventurous, said Elizabeth Rainge, an analyst at IDC. "Wall Data always goes for the warmest approach they can find," she added.

However, Wall Data took a leap forward by rewriting Rumba Office as a set of 25 GLE controls that can interface with Microsoft's Visual Basic language for application development purposes. "You could get very creative with this," said Murad Mershy, a network developer at TUG International, Inc. in Vancouver, British Columbia. The auto glass and communications services company is beta-testing Rumba Office with Windows 95.

PC-to-host

CONTINUED FROM PAGE 65

Windows 95-and Windows NT in late October, IBM and Wall Data rank second and third in sales, according to International Data Corp. (IDC) in Framingham, Mass.

Smaller vendors, such as NetSoft and Walker Richer & Quinn, Inc., also are in the picture (see chart page 65). The various products go beyond plain terminal emulation to provide point-and-click interfaces and features such as direct database access, Internet navigation and support for Microsoft Corp.'s OLE 2.0 object linking technology.

The breadth of 32-bit choices is good news for customers who aren't committed to a PC-to-host vendor, said Scott Griffith, a network systems analyst at J. D. Edwards & Co., an application software vendor based in Denver.

Griffith, who beta-tested Wall Data's 32-bit Rumba Office software, said he is intrigued by its notebook-style user interface, which lets users put their desktop applications into multiple tabbed pages. The notebook concept "takes a variety of icons and puts them in a much more manageable and user-friendly format that saves me a bunch of

time," he said. Griffith also plans to test the 32-bit connectivity products from Attachmate, IBM and Netsoft before Windows 95 or Windows NT is rolled out to the bulk of its end users next year.

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Computerworld DECEMBER 18, 1995

Large Systems

'net-based software helps out help desks

By Julia King

Users in search of answers to hardware and software problems have little patience with busy systems.

Customers get quickly frustrated if they have to wait for information such as the status of an order or how to assemble a product they may already have purchased. When they hang up, customer satisfaction declines. So do sales.

These are the kinds of problems a new crop of client/server, Internet-based help desk software was designed to address. The products let users view and download a firm's help desk, customer or other information and applications on a 24-hour basis. Users must have access to the Internet and a World Wide Web browser tool, such as Netscape Communications Corp.'s Navigator.

Jumping on board

In the past few weeks, Asia International, Inc. in Chaiton, Pa., and Inference Corp. in Novato, Calif., announced such help desk software.

Similar product announcements came last month from Vantive Corp. and Aurasoft, Inc., whose new server software lets companies publish their help desk and sales force automation applications on the Web (CW, Nov. 13). The Mot-

ley Group, Inc.'s Top Of Mind help desk software lets users process a query via Internet-based electronic mail.

Scopus Technology, Inc. in Emeryville, Calif., earlier this month also announced its WebTeam software, which is scheduled to ship early next year.

The vendor is using the software internally and letting customers retrieve information about its automation software company Web page.

Users' insatiable appetite for a broad range of information demand is driving the Internet protocol push, analysts said. The demand comes from internal software users, such as a company's accountants and secretaries, and customers with questions about products.

"Organizations recognize that more people need access to the help desk, yet they don't want to give each one a separate piece of software to access the help desk," said Carter Lusher, an analyst at Gartner Group, Inc., a software research firm in Stamford, Conn.



UCACB's Paul Bandrowski: His company is developing software to give Internet-based E-mail access to help desks

operations.

Users can use E-mail to log a case into UCACB's help desk system, which in turn will search for the information it needs to answer the query. When the system finds a solution, it routes the user via an Internet message.

UCACB also is looking to give users direct access to its knowledge system and full text retrieval capabilities, according to Paul Bandrowski, the company's chief information officer.

"The way users that want to can analyze their problems and search for solutions themselves," Bandrowski said.

Asteria's Web Server is scheduled to ship early next year. It will cost \$15,000 per server. Asteria said by the end of the year the software also will include support for applications based on Sun Microsystems, Inc.'s Java technology.

Help on the way

Gartner Group expects spending on help desk software in the U.S. to grow from \$60 million in 1994 to \$200 million in 1997.

Briefs

Triple the deal

Starling Software, Inc. bought three systems management products for mainframes based on IBM's VM operating system from Syracast, Inc. in Woodcliff Lake, N.J. Included in the deal is Syracast's high-performance backup and restore utility for VM systems, a directory manager and a data archiving product.

Oracle cuts deal

Oracle Corp. has made it to the movies; it has signed DreamWorks SKG as a content partner of its Oracle7 database soft-

ware and client/server financial applications. DreamWorks in Hollywood, which was co-founded by director Steven Spielberg, also plans to use Oracle's on-line analytical processing (OLAP) tools and its suite of Developer/2000 tools for developing custom application modules.

Out of the blue

Blueridge Technologies, Inc. in Fleet Hill, Va., has released Optix COLD (computer output to laser disk), software that archives multimedia reports as image files or ASCII files. Image

files can be viewed and managed with most image viewers but take up more space than ASCII files, which have to be viewed with a proprietary viewer. Prices start at \$10,000.

Hyperson OLAP set

Hyperson Software, Inc. in Stamford, Conn., by July 1 will release what it claims is the first financially oriented OLAP product. The application will be called Hyperson OLAP and will let users analyze product profitability, sales results and other financial data using a Web-based multidimensional database. Hyperson OLAP hasn't been priced yet. It will be built on the TM/1 OLAP engine.

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Dec. 1995 - March 1996

Issue Dates	Ad Closing Dates	Color/ B&W	Editorial Features & Custom Publications	Show Definitions & Ad Readership Study Issues
Dec. 18	Dec. 1	Dec. 8	Closer Look: Contact Management Tools	
Jan. 25	Dec. 2	Dec. 8	Annual Forecast Issue: Choices abound for IS managers in 1996, but the budget and the workload will stretch only so far. Computerworld will draw on the expertise of users and industry figures to help the IS manager solve the mystery of where to invest in 1996. Special Section: Jobs Preview 1996	
Jan. 8	Dec. 15	Dec. 29	Closer Look: Storage Management	
Jan. 15	Dec. 29	Jan. 5	Buyers Guide to Notebook Computers: A look at technology directions in portable computers, tips for evaluating notebooks and an analysis of the strengths and weaknesses of leading notebook product lines.	Search Study
Jan. 22	Dec. 5	Dec. 12	Closer Look: Switching Hubs	
Jan. 29	Dec. 12	Jan. 19	Buyers Guide to Network Management: How do today's network management packages meet corporate needs, and how will those products and corporate requirements evolve in tomorrow's distributed computing environment? What features should buyers look for, and how do products compare with each other?	ComNet Washington, DC 1/30 - 2/1
Feb. 5	Jan. 19	Feb. 26	Computerworld Client/Server Journal Extended Enterprise: Integrating external information with existing applications Product Focus: Networking Careers: Team compensation	Networks Expo UniForum Application Development Conf. Software Developers' Conference Database & Client/Server World ATM
Feb. 5	Jan. 19	Feb. 26	Special Report: Electronic Commerce	
Feb. 12	Jan. 26	Feb. 2	Closer Look: OS/2 and Unix	Networks Expo Boston 2/13 - 2/15 UniForum San Francisco 2/14 - 2/16
Feb. 19	Jan. 2	Feb. 9	Hot Happenings: An IS professional's guide to upcoming conferences and trade shows.	
Feb. 19	Jan. 2	Feb. 16	Buyers Guide to RAID: Now accepted by corporate users as one of their primary storage vehicles, RAID is being offered at the workgroup and the enterprise levels. A look at issues such as when RAID is the best bet for an application and when it isn't. Expert advice on how to evaluate RAID products, and offer insight into where RAID can and should go from here. Special Supplement: Top 25 Systems Integrators	Search Study
Mar. 4	Feb. 16	Mar. 23	Closer Look: Web Usage Tracking Tools	
Mar. 11	Feb. 23	Mar. 1	Buyer's Guide to Implementing Windows 95 and Windows NT: When is Win95 the right solution? When should you go to NT? What are the implementation issues and costs involved with each operating system? What utilities and applications are available for each?	Search Study
Mar. 18	Feb. 1	Mar. 8	Closer Look: Remote Access Software	
Mar. 25	Feb. 8	Mar. 15	Buyers Guide to Client/Server Development Tools: Which of the many vendor offerings are best suited for client/server development? Which features top a user's checklist when they are shopping? What benefits are corporations finding as they move to these tools?	Software Developers' Conf. Washington, DC 3/25 - 3/29 Database & Client/Server World Boston 3/26 - 3/28

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Computerworld Editorial Calendar

April - May, 1996

Issue Dates			Ad Closings Color* B&W	Editorial Features & Special Publications	Shows & Events	Ad Rates/Info
Apr	Mo.	21		Client/Server Journal Extended Enterprise: The latest in Customer Service Careers: Learning from the Third World Product Focus: Databases	Network + Internap DB Expo SIM CIO Conference Executive Technology Summit Object World	Harvey Study
Apr	Mo.	15	Mo.	22	Closer Look: Bandwidth Busting: tips and techniques for users who want better network performance.	AIBN San Francisco, 3/31 - 4/3 Networld + Interop Las Vegas, 4/2 - 4/4
Apr	Mo.	8	Mo.	22	Closer Look: Application Middleware	
Apr	Mo.	15	Apr	29	Buyers Guide to Enterprise DBMS: A look at the corporate world's options for enterprise database management, ranging from server-oriented DBMSs to those running on traditional hosts. Which category of products is right for various applications? What are the strengths and weaknesses of products within those categories?	DB Expo San Francisco 4/15 - 4/19
Apr	Apr	22	Apr	5	Buyers Guide to Distributed Systems Management: Vendors are promising new levels of system management — application management, desktop management and multi-platform management. A look at some of the competitors at several levels with users and experts evaluating the strengths and weaknesses of those products.	SIM CIO Conference Rancho Mirage, CA, 4/21 - 4/23 Executive Technology Summit Rancho Mirage, CA, 4/24 - 4/26
Apr	Apr	29	Apr	12	Special Report: Parallel processing	
May	Apr	6	Apr	19	Closer Look: Object-oriented Development Tools	Object World Boston 5/7 - 5/9
May	Apr	13	May	26	Closer Look: Windows 95 Applications	
May	Apr	26	May	3		

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Feb. - May, 1996

Issue Dates			Ad Closings	Custom Publications	Show Distribution & Ad Rate/Info/Study Issues
Feb.	Mo.	5	Mo.	White Paper: Enterprise Resource Planning (part 1 of 4-part Manufacturing Directions Series)	
Feb.	Mo.	26	Mo.	White Paper: Hierarchical Storage Management (part 1 of 4-part Enterprise Storage Management Series)	Starch Study
March	Mo.	4	Mo.	White Paper: Application Development (part 1 of 4-part Enterprise Software Directions Series)	
April	Fri.	22	Mo.	White Paper: Document Imaging (part 2 of 4-part Enterprise Storage Management Series)	SIM CIO Conference Executive Technology Summit
May	Mo.	6	Mo.	White Paper: Enterprise Networking: A Road Map for the Next Three to Five Years (part 2 of 4-part Manufacturing Directions Series)	Object World
May	Mo.	13	Mo.	Supplement: 1996 Windows World Open	Comdex Spring/Windows World

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Application Development

CASE • LANGUAGES • TOOLS

Overweight apps get off-loaded onto server

By Frank Hayes

Powersoft Corp. has shipped a beta copy of an updated version of PowerBuilder that is supposed to solve a major weight problem for applications developed with the popular visual development system.

PowerBuilder 5.0 targets applications that are simply too fat for a PC by allowing developers to split the software between a client PC and a larger server, according to officials at the Concord, Mass.-based division of Sybase Inc.

That solution can come too soon for users. "If too much of an application [is] on the client, it's going to cost a lot of money to make the PC powerful enough to run it well," said Terry Hale, information systems director at the Pierce County Information Systems Depart-

ment in Tacoma, Wash., where PowerBuilder 5.0 is being tested.

"If you spread that back to a server, that levels out the amount of power you're going to need for the process," he added.

The release also deals with another PowerBuilder problem: Large, complex PowerBuilder applications tend to run slowly, even on high-powered hardware. The new version can automatically compile complex applications into code that runs much faster than existing PowerBuilder applications.

However, the new applications will still require runtime libraries, which are necessary for handling certain functions.

PowerBuilder 5.0 is slated to ship by June 1995 for Windows 95 and Windows NT and shortly after for Unix and the Macintosh.

PowerBuilder is one of the most widely used Windows-based development

systems. It lets users construct graphical screens by dragging components into place with a mouse. But the inability to split up large applications has made those applications resource-hungry and hard to manage, as any change in an application requires updating every user's copy of the program.

"It's getting to be a big hassle to [update] the thousand users we have now" when database locations need to be changed, said Tom Cervenka, a beta tester and IS consultant at the University of Illinois in Chicago.

By splitting applications so that some parts run on central servers, systems administrators will be able to move databases around and modify business logic on a few centralized servers without having to update programs on every PC, Cervenka said.

Splitting an application won't be completely transparent to developers, who will have to code in the name of a server and the networking system — named

Terry Hale, IS director for Pierce County, Wash., says PowerBuilder 5.0 solves problems of fat applications

"pipes" for Windows NT or "wickets" for Unix. A future version of PowerBuilder will also support the Open Software Foundation's Distributed Computing Environment.

However, developers won't have to write specialized networking code to connect clients and servers.

PowerBuilder 5.0 will also include full support for OLE, Microsoft Corp.'s object architecture for Windows. In addition, the new version will sport an improved system for tracking and managing PowerBuilder components during the development process, company officials said.



Microsoft, Sun talking different languages

Scripting languages from both in works

By Frank Hayes

The battle of the Web scripting languages has begun.

Though Microsoft Corp. embraced Sun Microsystems, Inc.'s Java last week, the two are developing competing scripting languages, the simple programming languages that let users easily create World Wide Web sites.

Microsoft's newly unveiled Internet strategy includes VB Script, a stripped-down version of the company's Visual Basic language.

But even experienced Visual Basic users are taking a wait-and-see approach to VB Script.

"We would be concerned that it would be platform- and browser-independent," said Mark Guerette, senior office sys-

Following the scripts

Java Script	Sun and Netscape	Scaled-back version of Java language
VB Script	Microsoft's version of Visual Basic	Web extension of Small Elements development system
Web Element	Neuron Data	Web-enabled Smalltalk development system

tems analyst at the Alaska Airlines unit of Alaska Air Group in Seattle. "We wouldn't want to build something you could only use on a PC or wouldn't work with Netscape [Navigator]."

Java on the light side

Meanwhile, Sun and Netscape Communications Corp. have developed Java Script, a simplified version of Sun's Java

Internet programming language. Developers of other vendors, including Apple Computer, Inc., Hewlett-Packard Co., Digital Equipment Corp., Computer Associates International, Inc. and Novell, Inc., already have said they will incorporate Java Script in their products.

Web scripting languages are appealing because users want an easier way to create Web sites that include real appli-

cation capabilities instead of just displaying information. That is currently a complex and difficult process that typically uses Hypertext Markup Language, Perl and other languages.

Enough languages?

But some developers don't want another language. They simply want to develop applications that work on the Web just as they do on desktop PCs.

"We want to develop applications in one place and one place only," said Greg Stidder, systems manager for the distributed processing team at the Riverside County General Services Agency in Riverside, Calif.

As a result, some developers are using Web extensions to existing development systems. They include Web Element from Neuron Data, Inc. in Mountain View, Calif., and VisualWave from ParcPlace-Digitals, Inc. in Sunnyvale, Calif.

Macromedia meets PowerPC



PowerPC



(And interactivity hasn't been quite the same since.)

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Canon meets PowerPC technology.



PowerPC



(And scalability hasn't been quite the same since.)

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Bentley meets PowerPC technology.



PowerPC

(And modeling hasn't been quite the same since.)

IBM
Solutions for a small planet

Application Development

Objects, Inc. has introduced Layout 4.0 for Windows, an object-oriented development tool.

According to the Danvers, Mass., company, Layout 4.0 for Windows lets PC users create Windows programs without having to write source code. The tool also features more than 100 reusable

Layout objects, or blackboxes.

Layout 4.0 includes blackboxes for animation, transitions and advanced graphics. It also generates C and C++ source code for Microsoft Corp.'s Visual C++, Borland International, Inc.'s Borland C++ and ANSI C compilers.

Pricing for Layout 4.0 for Windows starts at \$300.
 ▶ Objects
 (508) 777-2800

Progress Software Corp. has introduced VBA Plus Pak, a collection of development tools.

According to the Bedford, Mass., company, VBA Plus Pak is a set of tools, OLE controls and source code for Microsoft Corp.'s Visual Basic. The product features a calendar control, a class tool for generating code, an upgrading tool and an

internet control that adds Internet-compliant Send Mail features to Visual Basic applications.

VBA Plus Pak costs \$50.
 ▶ Progress Software
 (617) 280-4000

Integrated Computer Solutions, Inc. has rolled out EnhancementPak 2.5, a development product for the Open Software Foundation's Motif.

According to the Cambridge, Mass., company, EnhancementPak 2.5 is a library of reusable graphical user interface (GUI) components. It features a Tab widget that gives Unix developers an interface — similar to the tabbed control available in Windows 95 applications — that lets them display multiple screens of widget hierarchies while giving them access to all underlying screens. It also is available in a Business Edition that includes graphing capabilities.

The widgets have prebuilt files for integration with leading GUI builders. EnhancementPak 2.5 is available on Sun Microsystems, Inc.'s SunOS and Solaris 2, Silicon Graphics, Inc.'s Irix, Hewlett-Packard Co.'s HP-UX, IBM's AIX and SCO, Inc.'s QDTR.

EnhancementPak 2.5 costs \$2,495 for a single-developer binary license.
 ▶ Integrated Computer Solutions
 (617) 621-0600

Centerline Software, Inc. has introduced QC/Replay, a product for testing X Window System applications.

According to the Cambridge, Mass., company, QC/Replay is an automated testing product that was designed to improve software development speed and its quality. It automates the process of capturing and replaying user key strokes and mouse clicks to uncover deviations in an X Window application's behavior. It is intended to uncover flaws early in the development cycle by automating the *interprocess* tests a graphical user interface-based client/server application requires.

Pricing for QC/Replay starts at \$4,995 for a floating license.
 ▶ Centerline Software
 (617) 498-3000

InSync Software Corp. has announced that it has integrated Monsoon Software Corp.'s X-IPC middleware with Passport 8.0.

According to the Ronkonkoma, N.Y., company, Passport 8.0 lets developers dynamically relocate application components from clients to servers or from servers to clients while an application is running. It was designed to provide integrated support for three-tier development. The product's asynchronous messaging features give Passport users a choice of partitioning methods, allocating resources as the application emerges.

Passport 8.0's environment is database- and network-independent. Pricing for three-tier Passport 8.0, which includes remote procedure calls and messaging middleware, starts at \$7,995. Two Passport 8.0 costs \$3,995 per developer seat.
 ▶ InSync Software
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Managing



Web-based training in future?

"As more and more people look up their stock quotes and read personal newspapers on-line, they'll get comfortable with Web training." — ELLEN JULIAN, senior analyst, International Data Corp.

International Data Corp. (IDC) in Framingham, Mass., recently examined the training possibilities presented by the explosion of the World Wide Web. The research group sees enormous potential on the Web but cautions that the technology is at the bleeding-edge stage.

Many organizations already use computer-based training (CBT), so a move to the Web requires no great leap in thinking.



Web Educational Support Tools, a multi-media courseware delivery system, is one of several tools being positioned for the coming boom in Web-based training.

And the Web could bypass one of CBT's pitfalls: disks that are out of date or inconsistent. Changing curricula would become cheaper and simpler. IDC analysts say the Web also could reduce travel and classroom costs. But the Web isn't a training cure-all. Its nonlinear nature and the lure of surfing may make it difficult to hold students' interest, IDC analysts warn. The absence of a "live" teacher could leave questions hanging, although this could be mitigated with electronic mail.

IDC found that there isn't much Web-based training yet. What little there is tends to be basic training about the Internet overall. IDC analysts predict big changes in the next 12 to 18 months. IDC estimates that there are 5.6 million Web users worldwide and predicts there will be 200 million Web users in 1999.

F.Y.I., page 84

With paltry salaries, crummy training and a throw-away mentality, it's no wonder most help desks are underappreciated. IS managers have only themselves to blame if their help desks are...

Not Much Help



By Jeremy Schlesberg

Jean Pawley is an information systems hot line operator at Zeneca Pharmaceuticals, Inc. in Wilmington, Del. She is cheerful, and her manager considers her effective. She has received her share of praise and even thank-you gifts from callers.

But end-user frustration can lead to, shall we say, a lapse in manners. Like the time an irritated end user blurted, "If you're really a computer person, you should be able to answer my question in 60 seconds."

Not Much Help, page 84

NOTES IS WORKING.

Today, Lotus Notes
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you work. And it's the
way your business works.
It's the way business
should work.



CONTINUED FROM PAGE 81

Are they insuring against Year 2000 problems?

According to a recent survey, insurers are starting to address the information systems nightmares that will hit when the year 2000 rolls around.

The survey was sponsored by the Life Office Management Association, on insurance industry organization based in Atlanta, and conducted by James Martin & Co. The poll asked more than 100 IS managers at life insurance companies what their century date change plans were. If any. More than 90% of the respondents said they are aware of the looming problem, but only half have a strategy in place. Most think upgrading or replacing legacy systems infected with century date change viruses will take two to three years.

Executive Track

Jobs Puckett, chief information officer at BBN Corp. in Cambridge, Mass., was recently elected a corporate officer by that company's board of directors. Puckett joined BBN in July. He was formerly executive manager for global business development at SunNetworks, Inc. BBN is a defense, communications and consulting company.



Help desk wins award

Michael Baker Corp. recently earned a Management Achievement Award from the Professional Services Management Association for launching a help desk that, according to Michael Baker, has handled more than 5,000 calls since it was created and has saved the company \$100,000 a year. The engineering, construction, operations and technical services company established the help desk last year. The company has 3,500 employees and is based in Pittsburgh.

COMPUTERWORLD DECEMBER 18, 1995

Help Desks



Not Much Help

CONTINUED FROM PAGE 81

Such an inane comment betrays the lack of respect corporate computer users have for the folks they're supposed to call on for support. And not everyone at a help desk is as capable as Pawley.

"The help desk is often considered the 'helpless desk,'" says Carter Lusher, an analyst at Gartner Group, Inc., in Stamford, Conn. A major reason, he says, is "lack of credibility." Who's to blame for this credibility gap? Arrogant users? Incompetent help desk staff? Perhaps, but if anyone ought to be at the busines end of a pointing finger, it's IS management.

Can't Get No Satisfaction

Complaints about corporate help desks are still legion, yet help desk experts say the complaints start with "I can never get anyone on the phone" and move quickly into "When I do get someone on the phone, they can never help me." The complaints often end with the particularly frustrating, "I know more about my computer than they do."

"I get people who are literally afraid to do customer surveys because of how bad the results would be," says Rhonda Mansucco, senior manager of consulting services at the Mims Group in Atlanta.

End users can be so suspicious of the help desk's capabilities that even help desk managers who are attempting to improve service run into resistance.

Steve Maticka, manager of information systems/operations at the nonprofit Institute for Transfusion Medicine in Pittsburgh, says when he established a formal help desk, he found some users unwilling to cooperate with the new resource. "Trying to get them to buy into the help desk concept was difficult," Maticka says. He set up the help desk with a voice-mail backup, but discovered that many users would hang up rather than leave a message.

You can't get what you don't measure!

Help desk managers rarely measure customer satisfaction . . .

What is the frequency of your customer satisfaction surveys?
998 respondents

They aren't conducted	19%
Now developing	19%
Annually	19%
Semi-annually	9%
Quarterly	8%
Monthly	5%
Weekly	4%
Daily	4%
As needed	15%

Data is rounded; percentages don't add up to 100%.
Source: Help Desk and Customer Support Practices Report, May 1995.
Help Desk Institute, Colorado Springs

. . . or response and repair time

Do you maintain statistics on response and repair times for hardware?

992 respondents

Yes	38%
No	62%

Source: Help Desk and Customer Support Practices Report, May 1995. Help Desk Institute, Colorado Springs

Of course, this prolonged the problem users were having. But reality isn't always what matters. "The biggest challenge," Maticka says, "is in the user's perception."

Three Horsemen of Inadequacy

At many help desks, user perceptions are based on three very real inadequacies: Help desks typically are understaffed, help desk personnel often are underqualified and the entire operation



IM HSG Home Page
Sponsored by The Research Programme Information Management HSG, the Institute for Information Management, the

University of St. Gallen, Switzerland

<http://www.iis.hsg.ch/ihsg/home.html>

Check out this repository of research to get a sense of what the European IS community is thinking about business process re-engineering, process and systems integration and other critical IS issues.

The IM HSG program is a partnership of major European multinationals and scholars and researchers from the University of St. Gallen in Switzerland. Together, they are developing models and solutions, or Competence Centers, for the efficient implementation of information systems. The program has completed five

Competence Centers so far. Only one is accessible, but it is a report invaluable to IS managers interested in electronic banking. Four more centers are on the way including the following: Process Engineering, Electronic Markets, Process and Systems Integration and Enterprises Knowledge Medium.

The tone of the project descriptions, publications and information linked to each topic borders on the academic but remains oriented to the IS business professional. Partner companies include SwissAir, Hoffmann-La Roche, Inc. and Daimler-Benz AG. — Leslie Goff

fies may be inadequately capitalized.

Help desks are understaffed because they rarely have a reliable way to determine the appropriate number of workers that will be necessary, says Michael Blaisdell, a consultant at Michael Blaisdell & Associates in Alameda, Calif. Instead, staffing is based on what Blaisdell calls the "irritant factor." When the number of complaints that reach upper management gets too high, the group is authorized to add some more representatives.

Help desk staff members are underqualified because the jobs rarely pay well. The average help desk operator earns \$29,486 per year, according to Computerworld's 1995 salary survey (CW, Sept. 4). In the IS world, only computer operators earn less. "The expectation is that the candidate will be on the job 24 months or less," Blaisdell says. "However long it takes to get into a 'real' job and get off the phone."

Once on the job, the typical help desk employee is given little training. The training that is provided tends to be technical, despite widespread industry recognition that communication skills are the key to good help desk service.

According to a survey published in May by the Help Desk Institute (HDI), a professional association based in Colorado Springs, 77% of respondents offer their help desk staff formal technical training, but only 47% offer basic training in customer service skills, and just 38% provide training in troubleshooting and problem-solving. Another 12% of the survey respondents admitted they offer no formal training.

The Wrong Job

Of course, the help desk is never trying to do a terrible job. More likely, neither the staff nor its managers are clear on what kind of job they should be doing: preventing problems and delighting the IS department's customers.

You don't believe it? Consider how few help desk managers frequently track end-user satisfaction. In the HDI survey, only 13% of respondents said they conduct customer satisfaction surveys on a daily, weekly or monthly basis. Nearly 40% said they don't conduct any surveys, although half of these managers claimed to be developing a survey of some sort. Response and repair times are tracked by only 38% of respondents, and 58% said they don't have service agreements with their customers.

Think about the classic, widely used metrics for measuring help desk performance: call volume and call length. Such measurements are an incentive for help desk personnel to field a lot of telephone calls and keep them short. "You get the behavior that you measure for," notes

Help Desks

No wonder it's hard to find great help desk personnel!

Salaries are low . . .

\$29,486

Average help desk operator salary, according to Computerworld's 1995 Salary Survey (Sept. 4)

... there's little training in customer service and troubleshooting . . .

Areas of formal training
2,370 respondents

Users' information systems	77%
Customer service	47%
Troubleshooting/problems-solving	38%
Company's business activities	22%
No formal training	12%

SOURCE: Help Desk and Customer Support Practices Report, May 1995 (HDI, Denver)

... and there's no career path

Career paths available for help desk personnel
1,160 respondents

No	58%
Yes	37%
Don't know	5%

SOURCE: Help Desk and Customer Support Practices Report, May 1995 (HDI)

Fred Schreengost, the first director of HDI and a consultant at Bentley Co. in Boston. The trouble is, merely keeping phone calls short and sweet does nothing to identify the root cause of the problem or prevent its recurrence.

This isn't the help desk employee's shortcoming, it is the help desk manager's. "In the course of my work, I've encountered maybe two or three help desk managers who really knew what they were doing," Blaisdell says. "The overwhelming majority think their role is to answer technical questions as quickly and as cheaply as possible" rather than analyzing the kinds of calls they get and taking action that would eliminate these problems, he says.

In the minority is Jeff Trzacewski, Jim Pawley's boss at Zeneca. "I don't try to measure them quantitatively," he says of his hot line operators. "You can get into danger if you just look at call times." His help desk employees are trained to look for preventative measures, including simply making sure callers know where else to turn for related information. "That has to be the closing part of the call for us," Trzacewski says. "If you just give them the one answer they were looking for quickly, they're going to call you back a few minutes later with the next logical question."

The Road to Respect

Unless a help desk is consciously working toward call prevention, it is spinning its wheels, costing the company money and languishing at the Rodney Dangerfield of the IS organizations.

Because of studies in recent years that tried to delineate the costs of informal support, more companies are beginning to view the potential value of the help desk with a new attitude and willingness to invest. Will respect follow? It will, if the help desk learns to do the following:

- Identify and track end-user needs. Customer surveys should be a regular part of help desk activity.

- Track and analyze calls by type of problem. If the help desk is proactive rather than reactive, end-user productivity will increase.

- Reward help desk agents for identifying the root causes of problems rather than fixing surface symptoms. Workers should use a diagnostic approach, not a quick-fix one.

- Make a better case for the help desk's value at a corporate level. "The help desk has to be recognized as a core function in the organization," says Chas LaBounty, director of membership services at HDI. But senior-level executives can't be expected to come to this recognition on their own. Help desk managers must communicate effectively with their superiors to seek the resources they need to improve operations. "Act like a victim, and you'll be treated like a victim," LaBounty warns.

Schlosberg is a freelance writer in Cincinnati.

Calendar

JAN. 17 - JAN. 30

SECURITY

1995 RSA Data Security Conference, San Francisco, Jan. 17-19 — Cryptography conference sponsored by RSA Data Security, Inc. This event was highlighted as a "Hot Happening" in the Nov. 20 issue of Computerworld. Speakers include Clinton C. Brooks of the National Security Agency and Barbara Fox of Microsoft Corp.

Topics: realizing payments over the Internet, digital identification and navigation, file encryption under Windows 95 and security extensions for the World Wide Web. Fee: \$395 to \$685. Contact: Layne Kaplan Events, (800) 340-3010. Or register on-line: <http://www.rsa.com/>.

INSURANCE

Insurance, Banking and Financial Services: Information Technology Systems Conference for the Year 2000, New York, Jan. 29-30 — Focus is on strategies for sizing, planning and converting systems for the millennium. The featured speaker will be

Peter de Jager of de Jager & Co. Information systems executives and managers also will speak, including officials from Bank of Boston Corp., The Charles Corp., Utica Corp., Merrill Lynch & Co., Citicorp Corp. Contact: IBC USA Conferences, Inc., Southboro, Mass., (508) 451-6460. Or visit the conference Web site: <http://www.ibc.org/~ibc/it2000/>.

Building and Developing Key Data Warehousing Strategies, Dallas, Jan. 29-31 — Focus is on learning how to harness unstructured data, decrease response time and predict customer buying patterns. Workshops: "On-line Analytical Processing,"

"Retrieving and Utilizing Strategic Data through Multidimensional Architecture" and "Building Blocks to Successful Data Mining." Contact: Global Business Research, Inc., New York, (212) 645-4220.

Using Business-Focused Information Technology for Developing High-Performance Financial Institutions, San Diego, Jan. 27-29 — Topics: strategies for maximizing information technology investment, measuring the profitability of enabling technologies and managing a client/server architecture. Fee: \$1,185. Contact: KCM Conferences, Inc., Chicago, (312) 540-3845.

DECEMBER 18, 1995 COMPUTERWORLD

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Virgil Feltman

President
Lark Fire & Casualty

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to anyone you choose.

The myth of best practices

There's no formula for the best way to spend money on information technology, save one - don't spend it on massive outsourcing contracts

Prominent consultants and leading magazines publish survey results about information technology spending patterns that too often are turned into advice on best practices for allocating information systems budgets.

Is there a best way to spend your information technology budget? The answer is no.

Excellent companies can achieve superior performance without following any standard information technology spending pattern. I base this conclusion on my analysis of the budgets of Computerworld's Premier 100 companies over a two-year period. These are organizations whose information productivity is superior to other U.S. corporations (for details, see CW, Sept. 19, 1994 and Oct. 9, 1995).

The Premier 100 companies don't show any consistent IS budget patterns. Only one variable clearly stands out: They don't show any trends toward massive outsourcing.

A wide range of spending
The wide variances in Premier 100 company information technology budgets contrast with budget surveys that provide only an average percentage or dollar amount for various technology expenditures.

The chart below displays the wide range among information technol-

ogy budgets. It shows the median, 25% and 75% points of the percentage distribution of total information technology budgets. The highest and lowest recorded values aren't shown.

My conclusion: Excellent corporations deploy information technology in several ways. Many rely on mainframe computing, using older machines. Some spend a great deal on server hardware and PCs. Some devote up to half their budgets to systems development and systems engineering, and others cast along on program maintenance.

Excellence arises from the way management harmonizes its resources, which are different for each organization. This is why I believe the current fashion of telling companies what their best-practice indicators should be, especially to apportion hardware, has questionable merit. Companies are excellent because they have found ways to differentiate themselves from their competitors. The last thing an excellent company wants to do is imitate an average standard.

In a recent article, "Outsourcing:

A game for losers" (CW, Aug. 21), I concluded that outsourcing may become a more credible solution to systems problems if it progresses and growing organizations start retaining large numbers of IS personnel from their payrolls. My friends pointed out that I didn't definitively prove that high-performance organizations don't outsource. My analysis, I was told, concentrated only on companies that lost economic value-added and showed corporation-wide personnel cuts while outsourcing information technology.

It just so happens that I have a wealth of information from the Premier 100 firms to test whether excellent companies depend on personnel cuts outsourcing vendors.

A good way to predict the IS budget is to simply multiply the number of IS staff by \$171,200. The actual IS budget number will be very close to that figure in 92% of all cases. In other words, there is almost a direct correlation between the information technology budget and the IS staff.

If any of these corporations were

outsourcing an unusually large

share of their information technology, the remaining staff would have to support at least \$1 million worth of the information technology cost per person. That isn't the case for any of these "best" firms.

The Premier 100 firms do selective outsourcing, ranging anywhere from 3% to 11% of their total budgets. But they retain most of their information management capabilities as their core competency. Excellence is gained through accumulation of company-specific know-how, for which company-based information management is indispensable.

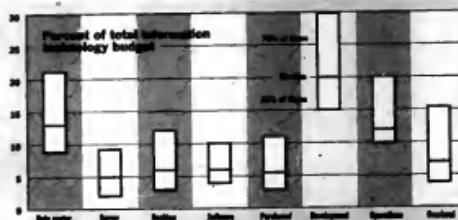
The data from the Premier 100 companies offers a rich source of insights, supported by verifiable facts, about firms that have demonstrated superior information productivity. Neither the prescription of best practices for information technology expenditures nor the presumption that outsourcing is a requirement for excellence stands up — so far — to critical examination.

That should help you better judge what you hear or read about best practices for information technology spending.

Strassmann has served as chief information officer at major U.S. corporations and the U.S. Department of Defense since 1981. His Internet address is paul@strassmann.com. His World Wide Web address is <http://www.strassmann.com/>.

No best practice for information technology spending

There's a big variance in how Premier 100 companies spend their information technology budget. For example, data center hardware spending ranges from below 8.9% to 21.1% of the total information technology budget. The range would be smaller if there were a best practice for technology spending.



In Depth



Christopher Lyles

Try your hand at answering some of these brainteasers, including items on a famous opium addict, Bill Gates' bachelor party and hacker slang.

THE PC REVOLUTION

- 1 According to a 1994 article in *The New York Times*, what high-tech commodity item is even hotter than illegal drugs on the black market?
- 2 In the 1980s, a Taiwan-based computer company offered a cheap, do-it-yourself hardware modification that seemed to triple the speed of the PC. In fact, it merely slowed the system clock so that benchmarks appeared to run faster. What was this modification called?
- 3 It's almost a cliche that many Silicon Valley companies started out in a garage. Of the following companies, which didn't start in a garage: Apple Computer, Inc., TeleVideo Systems, Inc. or Sun Microsystems, Inc.?
- 4 In 1992, Robert X. Cringley wrote *Accidental Empires*, a controversial, gossipy book about the PC industry. The subtitle of the book begins, "How the Boys of Silicon Valley Make Their Millions, Battle Foreign Competition and..." What is the rest of the subtitle?
- 5 What was Borland International, Inc.'s internal pre-release name for its Quattro spreadsheet? Buddha, Rows and Columns or Spreadsheets 'R Us?

ANSWERS:

1. Computer memory chips 2. The Chang modification 3. Sun 4. "... Still Can't Get a Date." 5. Buddha, a punning name based on the company's assumption that Quattro would "assume the Lotus position."

COMPUTERS IN THE MEDIA

- 1 Ted Nelson is the well-known hypertext pioneer and author of *Computer Lib/Dream Machines* and other books. His mother is a famous actress. Is she Celeste Holm, Bette Davis or Claire Bloom?
- 2 His 1989 song "Networking" has the following refrain: "Networking, I'm user friendly / Networking, I install with ease / Data processed, truly Basic / I will upload you, you can download me." Who wrote this: Frank Zappa, Tod Rungren or Warren Zevon?
- 3 In what year did *The New York Times* switch from hot type to computerized typesetting?
- 4 The *Hammond Atlas of the World* claims to be the first atlas created entirely from a digital database. What year was this atlas produced: 1968, 1991 or 1993?

ANSWERS:

1. Celeste Holm 2. Warren Zevon, from his *Transverse City* album 3. Sunday, July 2, 1978 4. 1993

Trivia maven, page 93

From *The Official Computer Book Trivia Book* by Christopher Morgan. Foreword by Bill Gates. Copyright 1995 by The Computer Museum. To be published in March 1996 by Crown Trade Paperbacks.

IT'S TIME FOR NOTES.

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Microsoft Exchange?

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importantly, build and
deploy custom applications
that coordinate mission-
critical business processes
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IT'S NOT HOW MUCH YOU READ.

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The Newspaper of IS

Computer Trivia

Trivia maven

CONTINUED FROM PAGE 89

PEOPLE IN COMPUTING

- In 1994, two computer CEOs, Bill Gates of Microsoft Corp. and Scott McNealy of Sun, were both married. (A) Did Scott McNealy's bachelor party feature a belly dancer; a war game with paint guns or a 26-hole round of golf at Pebble Beach? and (B) Was Bill Gates' bachelor party held aboard the QE2 in the Grand Canyon or in Hawaii?
- Before becoming Knowledgeware, Inc.'s CEO, former football player Fran Tarkenton played for what two teams?
- Steve Wozniak, co-founder of Apple, earned money in college by selling "blue boxes" to other students. What did a blue box do?
- Which of the following did Bill Gates not do: (A) drop out of Harvard, (B) program the PDP-10 or (C) have a 1,000-person 25th birthday party?

ANSWERS:

- (A) War game with paint guns (B) Hawaii (a. The Minnesota Vikings and New York Giants); (b. It attached to a pay phone and created the proper signals to let the user make free phone calls. He didn't have a 1,000-person 25th birthday party).

THE INFORMATION HIGHWAY

- Scott Adams puts his Internet electronic-mail address between the panels of his nationally syndicated comic strip. What comic strip does he draw?
- How soon are Supreme Court decisions available on the Internet after they are announced, within a day, within one to two weeks or within a month?
- What shortcut two-word command can you use in CompuServe to connect with the White House?

ANSWERS:

1. Dilbert (a. Within a day, 3. Go Whitehouse)

COMPANIES, BUSINESS & MONEY

- According to U.S. News & World Report, as of 1995, approximately how many Microsoft employees owned more than \$1 million apiece in Microsoft stock: 15, 150 or 2,000?
- In 1972, Nolan Bushnell and Ted Dabney pooled their available funds to start Atari Corp. How much did each put in: \$250, \$1,000 or \$5,000?
- In a June 1984 lawsuit, Berkeley Systems was sued for using the winged toaster image taken from the cover art of which rock group's album: The Grateful Dead, The Moody Blues or Jefferson Airplane?
- During the 1980s, was the per capita divorce rate higher in Santa Clara County (site of Silicon Valley) or in Boston's Middlesex County (site of Boston's Route 128 technology area)?
- One of the former Soviet Union's top computer designers is Boris A. Babayev, who helped develop the Elbrus III supercomputer. What U.S. company hired Babayev and his staff in the early 1990s?

ANSWERS:

- 2,000 (a. 5, 3. Jefferson Airplane 4. Santa Clara County 5. Sun)

TOUGH QUESTIONS FOR HACKERS ONLY

- In computer slang, does the word "sagan" mean an inflation of ego, a large quantity of anything or planetary networked computers?
- "Foobar" is a common programmer's term used to describe a confusing or messy situation. The term was coined during World War II. What does it stand for?
- How far can electricity travel in a nanosecond: 1.8 inches, 10.8 inches or 108 inches?
- How long would it take to send the *Encyclopaedia Britannica* over a 2G bit fiber-optic

cable: two seconds, two minutes or 20 minutes?

- In data communications, what kind of information is sent over the guard band?
- What is often added to printer ink to prevent microorganisms from clogging ink jets?
- What programming law states that "adding manpower to a late software project makes it later"?

ANSWERS:

- A large quantity of anything (a. 1. False 2. ink 3. 10.8 inches 4. Two seconds 5. Noise. It is a band between two channels that is left empty of signals to guard against cross-talk.
- Antibiotics (a. Brook's law)

PIONEERING COMPUTING

- During the 1940s, computer pioneer Grace Murray Hopper found an insect that was literally jamming a computer relay. She jokingly referred to it as the first computer "bug." What kind of insect was it, and in what machine did she find it?
- A famous computer pioneer was also an opium addict and a gambler. Was it Ada Lovelace, Alan Turing or Norbert Wiener?
- The book *Digital Delirium* mentions that computer pioneer Charles Babbage tried his hand at a variety of inventions. Which of the following did he attempt to invent: a portable steam engine, a cotton candy machine or shoes for walking on water?
- What computer science pioneer liked to play outdoor endurance chess, during which a player made a move, then ran around a large garden while the other player made a move: Alan Turing, John von Neumann or Norbert Wiener?

ANSWERS:

4. A moth; In the Harvard Mark II a. Ada Lovelace 3. Shoes for walking on water 4. Alan Turing

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Computer Careers

Eiffel masters: GAINING THE OBJECT EDGE

YOU MAY NEVER USE IT, BUT KNOWING EIFFEL WILL GIVE YOU MORE CLOUT AS AN OBJECT-ORIENTED PROGRAMMER

By Leslie Goff

So you want to be a true object-oriented application developer, n'est-ce pas? You might consider learning a language called Eiffel. Developers working with the language say it is an expedient way to learn about general object-oriented programming concepts and techniques.

"If you want to learn about object-oriented programming, starting with Eiffel is a very good step," says Richard Bielak, project manager for a team of 16 developers at Credit Agricole Lazarid in New York. "A lot of universities are using it, so it is becoming something like Pascal in the early '70s—the teaching language of universities."

A recruiter who specializes in locating object-oriented developers for clients such as IBM, AT&T Corp., GTE Labs and a number of software development firms says that even though she doesn't receive many requests for Eiffel developers, she pays more attention to a candidate who has Eiffel experience.

Eiffel masters, page 95

EIFFEL TRAINING RESOURCES

Companies that offer training in the Eiffel language:

Hutchinson Avenue
Software Corp.,
Montreal
(514) 495-2067

Interactive Software Engineering
Santa Barbara,
Calif.
(805) 665-1006

Unit Point Systems
Fremont, Calif.
(510) 657-2141

Mark V Systems
Encino, Calif.
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Semisphere
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(615) 238-3288

Technology Resource Group, Inc.
Wayland, Mass.
(508) 443-1388

Tower Technology
Austin, Texas
(800) 285-5124

Commentary

An offer you can't refuse?

Deciding on that IS dream job may depend on the reality of six key questions

By Jennifer Grey

You are 31 years old, have five solid years of mainframe and client/server experience and have just been offered an information systems job that pays \$60,000 a year — \$10,000 more than you make now. Do you take the offer?

As director of operations at a software application developer, I spend most of my time consulting and recruiting employees, and I hear this question almost daily. With the IS industry growing exponentially, there are often far more jobs than people to fill them. It's only natural that many companies would try to solve the problem with these checkbooks.

Yet the lure of more money often obscures deeper career issues. So my advice to those who are thinking of changing jobs is to think very carefully about the answers to these questions:

1. Do my job expectations match those of the employer?

This is the central question. Other ways of asking it: "What is my long-term value to the market?" Does the job open a career path that corresponds to that value? Or is my prospective employer merely in temporary need of a specific technology that, once supplied, will take me to a career dead end?"

2. Is the prospective employer willing to set out its expectations in writing?

In the scramble for talent, employers often will tell potential hires what they think they want to hear. Multimillion-dollar projects are riding on whether a few key slots can be filled, and recruiters are under intense pressure to fill them.



Careful companies, however, want to make sure everyone is on the same page before you join them. They should be willing to lay out clear performance standards and criteria for rewards ahead of time.

For example, written guidelines for a prospective project manager should include expected deadlines and cost targets, the process by which you will be held accountable and when you will become eligible for profit sharing and promotion.

3. Who are my potential role models at the company?

Try to meet people at your prospective employer who are doing what you want to be doing five and 10 years from now. Ask them how their careers developed. If they can point to a steady increase in responsibility over the years, that's a good sign you can expect such increases as well if you stay with the company.

4. What's the long-term value of my specialty?

You and your specialty may be in demand today, but the industry is littered with people who relied solely on specialized know-how that has since become commonplace. A few years ago, experts in computer-aided software engineering tools such as Application Development Work-

bench could practically name their price. Now those skills are readily available.

Taking a big raise now based solely on your technical expertise may make you expendable in a year or two. Responsible companies don't suck employees dry; they offer ongoing training that allows you to continually expand your knowledge base.

5. What's the business viability of my prospective employer?

As obvious as this question may seem, many prospective employees, particularly technicians, don't ask it. Research potential employers at the library or check their World Wide Web sites to assess their sales and profits.

6. What's the business viability of the project on which I'm being asked to work, and what are my alternatives if the project doesn't materialize?

In one case, an employee at my company left to join a major systems integrator that was about to begin a project in Detroit, where he and his family were living happily. But the project fell through, and he had to accept work on an off-site state project. He and his very unhappy family had to move to another part of the country.

So, should you take that new job? Only by carefully answering questions such as these will you come up with an answer you can live with. Above all, deliberate, don't leap. It's a seller's job market, and you can afford to make a well-thought-out decision.

Jennifer Grey is director of operations at Complete Business Solutions, Inc., a computer systems integrator and software development company in Farmington Hills, Mich.

Regional Scope: Hawaii

Heads in the sand

Many mainland IS job seekers think life's a beach in Hawaii.

But the reality of high prices and low IS opportunity can be a rude awakening.

BY WILLIAM SPAIN

Some Hawaii employers are extending only a qualified aloha to information systems job seekers hired by sun-savvy mainlanders.

This is despite the fact that the Hawaiian Islands' need for skilled IS personnel mirrors that of most mainland states.

"One of the problems we have in terms of getting qualified people [from the mainland] is that a huge number of those who respond to our ads have the beach in mind," says Greg Colbert, vice president of corporate development at Honolulu-based Title Guaranty of Hawaii, Inc.

"They come out on a lark and find out it is too expensive to live the way they want, so they turn around and go back," he says.

The result: projects left in the lurch.

Would-be migrants should be aware that the median cost of a house is about \$350,000, and most consumer goods demand a high premium as a result of shipping costs.

"We get a lot of folks who come out from the mainland and help you get something going, and then there are 2,000 miles away when the pedal hits the metal. Every company in Hawaii has been burned when their support goes back to the mainland," Colbert says.

Jobs are available

Colbert's complaint, which is echoed by several other island concerns, doesn't negate the fact that there are jobs available for those willing to commit for the long haul. Some are even created on the lower end as a consequence of hometown talent advancing beyond local needs.

Topping Colbert's wish list are people experienced in database design, networking and network security, with an emphasis on the Internet; and application development.

In Hawaii's "small market environment, with relatively few opportunities, the people on the hiring side have the perception that there is no talent out there. So if you happen to hit on a match, it is almost an immediate marriage," says Jeff Bloom, executive director of Honolulu's Com-



PHOTO BY MARK LIDDELL

Waikiki Beach on Oahu is a siren call for many mainlanders seeking IS positions

puter Training Academy.

For the future, "there are pockets of activity in Hawaii which probably lead the nation [in technology]," Bloom says. "The state is very quickly on its road to deregulate the telecommunications industry, and that part of our economy is going to get more technical real fast."

Those niches aside, tourism still dominates the private sector in what is primarily a service-oriented econ-

HAWAIIAN HOT SPOTS

- Top 10 skills sought by Hawaiian employers include:
- Systems administration for Novell
- Client/server development
- Visual Basic, C and C++
- Delphi
- Microsoft C
- Database design
- Network management
- Network security
- Application development

TOP EMPLOYERS

Hawaii has a "small market" economy, with only 10% of businesses having more than 50 employees.

RANK EMPLOYER

RANK	EMPLOYER	NUMBER OF EMPLOYEES
1	Dole, Inc.** (food processing/investment properties)	46,000
2	BanCorp Hawaii, Inc. (bank holding company)	4,300
3	Kyo Yo Hotels (Sheraton hotel franchise)	4,000
4	Alexander & Baldwin, Inc. (sugar growing and refining)	3,581
5	McDonald's Restaurants of Hawaii (restaurant chain)	3,500
6	The Queen's Health Systems (health care)	3,499
7*	GTE Hawaiian Tel (telephone utility)	3,400
7*	Hawaiian Electric Industries, Inc. (electric utility)	3,400
8	Kaiser Permanente Medical Care Program (health care)	3,300
9*	First Hawaiian, Inc. (bank holding company)	3,000
9*	Liberty House (department store chain)	3,000
9*	Outrigger Hotel Hawaii (hotel chain)	3,000

*Est. accn.

**Includes three divisions: Dole Fresh Fruit of Hawaii, Waters Sugar and Castle & Cooke Properties.

Source: "Top 100 largest companies in Hawaii," *Business Week*, August 1995.

omy, according to Bloom. There isn't a lot of call for high-tech people in that industry, he says. And even though the largest single employer — Dole, Inc. — has more than 40,000 employees, "very few of them use computers."

Bloom also points out that most Hawaii-based companies "are very cautious about who they are dealing with. [Honolulu] has been relatively conservative for [the 20 years] I have been here."

As a result, Hawaii is "two to five years behind the mainland in the technology field. If you look at what is happening on the West Coast, it is going to happen here a few years later," he says.

Fortunately, with recent advances in electronic mail and the Internet, "we are not so isolated as we were a few years back," Bloom says.

Not quite picture perfect

For Dennis Koo, Hawaii's employment picture is a matter of "not enough jobs and not the right mix of people for the jobs that are available."

Koo, president of Pacific Area Computer Services, says, "We are basically a small business town: 90% of the companies have nine people or less, so there are not that many large sites." He says there's a need mainly for "people to maintain, manage and install networks."

One problem is that "the regional economy hasn't diversified," Koo says. And businesses that need to stay on the cutting edge "are going offshore with their processing. Even the telephone bills are printed in Texas," he says.

The major draw industries are still the government and the travel business," Koo says. "If either one goes, we are going to be in hot water."

Spain is a freelance writer in Boston.

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Marketplace

Dear Santa, I want new disk drive specs

CD-ROM publishers offer IS-oriented tools

By Alan Radding

Your mailbox is probably overflowing with CD-ROM game promotions as the frenzied holiday selling season rams along in high gear. But along with the flood of consumer games, there are a growing number of technical titles to fulfill the information systems professional's wish list.

CD-ROM titles for the IS organization fall into two main categories: network/system support tools, which network and system administrators and support groups use to troubleshoot and resolve problems; and language and application development resources, which application developers use.

The language and tools category is hot. The Software Publishers Association, which tracks CD-ROM action based on surveys of the leading publishers, reports sales in the languages and tools category tripled in the first half of 1995 to \$114 million (\$50,000 units), compared with \$33 million in the first half of 1994 (188,000 units).

The average price of a CD-ROM is \$211, says Anne Griffith, a senior research analyst at the association, but prices vary widely:

Network/systems support tools

These tools assist IS groups with systems and network troubleshooting and problem resolution. Almost all the major system, application and networking vendors offer CD-ROMs packed with technical notes, documentation, fixes, patches and various technical information to help IS personnel track and resolve problems themselves.

"The value of these CD-ROMs varies greatly depending on how much effort and added value the publisher puts into them," says Bob Johnson, director of software services research at Dataquest Worldwide Service Group in Westboro, Mass.

Some vendors simply dump their printed documentation onto the CD-ROM, but others leverage

the computer's capabilities in terms of search capability and intelligence to help users find solutions to their problems quickly and easily. And increasingly, vendors are adding video and imaging to show a procedure rather than simply explaining it.

Johnson cites Lotus Development Corp.'s Knowledgebase, Microsoft Corp.'s TechNet and Novellsoft Corp.'s Infobase as good examples of technical support CD-ROMs. Most major software vendors provide CD-ROM support.

Independent publishers also market a variety of CD-ROMs that provide system and network information.

One independent publisher, Micro House International in Boulder, Colo., offers the Micro House Technical Library. The CD-ROM contains the company's encyclopedia of hard drives, main boards, network interface cards and peripheral cards.

The package also contains the complete specifications, configurations, jumper and switch settings, and diagrams for thousands of hardware products.

A new crop of CD-ROM publishers is focusing on supporting Internet activity. These include Internet Info from Walnut Creek in Concord, Calif.

This package boasts more than 17,000 technical documents relating to the Internet. It includes information files from newsgroups, file transfer protocol (FTP) site lists and descriptions of their archives, and Usenet discussion group archives.

Atlanta Innovation, Inc. in Roswell, Ga., offers the Internet CD-ROM Tool. This provides help files, documentation, lists of mailing groups, file conversion utilities and software, including share-

ware, public-domain software and vendor-provided demonstrations.

Languages and applications

Again, the big players are Microsoft, Borland International, Inc. and other providers of application development tools. But there is a growing crop of independent CD-ROM publishers. Walnut Creek, for example, offers The Official Slackware Linux FreeBSD 2.6 and Hobbes OS/2, a four-disc CD-ROM set that it claims is the largest available collection of OS/2 material.

InfoMagic in Flagstaff, Ariz., offers CICA Windows. This is a two-disc set collected from the Center for Innovative Computing Applications, which is a large Windows FTP site. Included are fonts, icons and bitmaps, and C, C++, Turbo Pascal and Visual Basic tools.

It also provides the Linux Developer's Resource: Mother of Perl for the popular Perl utility language; TCL/TK, a C-based scripting language; the X Files, which contains the complete source distribution for X11R; and Source Code, which contains a wide range of source codes for various Unix systems.

Keep in mind that almost everything contained on these CD-ROMs can be accessed on-line, where you are likely to find more recent material. But these CD-ROMs contain ample material and save you the trouble and expense of hunting all over the Internet to find what you want.

Radding is a freelance writer in Newton, Mass.

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INDEX

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pg 195
pg 195
pg 195

pg 195
pg 195

pg 194

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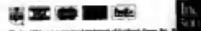
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Topping the charts

Every store you walk into this week seems to be piping in a version of "The Little Drummer Boy." It also seems as if every business page you pick up has another announcement about high-tech initial public offerings. More than 190 high-tech companies have gone public so far this year — the highest number since 1983, according to Securities Data Co. in Newark, NJ. These public offerings have raised \$7.7 billion — a new record.

The industry also has been whistling a cheery tune about Sun Microsystems, Inc. (SUNW). Sun's Java programming language has been one of the Internet hits of the year. Sun's UltraSPARC chip, introduced last month, also has started to bring in good reviews and solid revenue, said C. B. Lee, an analyst at Hanscoek Institutional Equity Research in San Francisco.

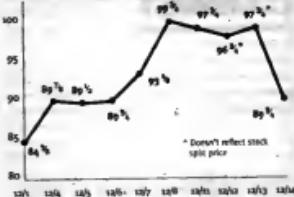
"Don't underestimate the success Sun has had with their new line based on the UltraSPARC. These machines are really good products, and they're starting to bring in a steady revenue stream for Sun," he said.

Sun has done a "tremendous marketing job, repositioning themselves as an Internet solutions provider," Lee said. "Reality is starting to catch up with the perception that their Internet business is boozing." Sun's stock price received two boosts recently when the firm announced an alliance with Netscape Communications Corp. (NSCP) and when Microsoft Corp. (MSFT) announced it would license Java (see chart).

The key to sustaining this growth, analysts said, is for Sun to keep Java open and encourage other licensees. "Sun has become the platform to consider first. The lead is now theirs to lose," Lee said. — *Stewart Deck*

Sun breaks out

Sun's stock price has risen recently with the successes of the UltraSPARC chip and Java programming language



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SE	27.79	2.75	Utilities	0.00	-0.00	\$1.1B	24.5x	11.7%	10.0%	Strong
SLB	13.12	1.38	Consumer Goods	0.00	-0.00	\$1.1B	10.0x	11.7%	10.0%	Strong
SPG	10.00	0.00	Consumer Staples	0.00	-0.00	\$1.1B	10.0x	9.0%	10.0%	Strong
SPWR	14.00	1.00	Consumer Staples	0.00	-0.00	\$1.1B	14.0x	14.0%	10.0%	Strong
STOXX	74.00	8.00	Consumer Staples	0.00	-0.00	\$1.1B	9.0x	10.0%	10.0%	Strong
STX	14.00	1.00	Consumer Staples	0.00	-0.00	\$1.1B	14.0x	14.0%	10.0%	Strong
SWK	15.00	1.00	Consumer Staples	0.00	-0.00	\$1.1B	15.0x	13.7%	10.0%	Strong
T	74.00	8.00	Consumer Staples	0.00	-0.00	\$1.1B	9.0x	10.0%	10.0%	Strong
TMK	17.00	1.00	Consumer Staples	0.00	-0.00	\$1.1B	17.0x	11.8%	10.0%	Strong
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AHRYA	8.75	2.50	ARMED THERAPY INC.	6.35	4.95	1.8	AON	10.15	3.75
				7.00	4.75	7.12	ONTR	18.35	15.25
							QuantaCom	18.75	18.00

KEY: B1 = Blue annual, HIGH BLOOMS IN PAPER (1) = HIGH MEDIUM, LTP = REACHES IN PAPER
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Lotus

CONTINUED FROM COVER I

chances and embrace Web technology?

For months now, users and industry watchers have been debating whether the Web could replace Notes' groupware capabilities. Lotus CEO Michael Zisman says the Internet doesn't compete with Notes. "The Internet is just a transmission system," he said.

Notes servers

"I can't see myself buying another [Notes] desktop," he said. "I will use Netscape." Bridges said he can use an even cheaper — or free — Web browser to access an IRS Notes database in Washington, for example, rather than replicate the database to Austin for local Notes users to access.

Notes users seemed more enthusiastic about Lotus' Web plan than about its price reductions.

In its Internet strategy, Lotus plans to do the following:

Take Notes

Lotus has added Web functions to its Notes servers and dropped the price of Notes clients to garner market share

	ONE PRICE	NEW PRICE
NOTES MAIL	Not applicable	\$55
NOTES DESKTOP	\$155	\$69
SINGLE-PROCESSOR SERVER	\$275	\$495 (bundled with InterNotes Web Publisher, formerly \$2,500)
MULTIPROCESSOR SERVER	Not applicable	\$2,295 (includes InterNotes bundle and supports up to 1,000 active sessions)

Still, Zisman added, "We see companies that believe they can build intranets [using the Web] less expensively than they can with Notes, and we want to address that."

But lower prices for the Notes clients won't matter at all for Bridges' network since Web browsers will be able to access

- Develop frameworks for vertical Web applications such as customer service.
- Provide InterNotes Web Publisher as a free addition to the Notes 4.0 server.
- Incorporate Sun's Java technology into Notes' LotusScript language and support Internet hyper-text languages and network

protocols by early next summer.

- Cut prices on its Notes client software and add functionality and scalability to the Notes server line (see chart).
- Introduce Notes Mail, a client/server Notes mail client (see story at right).

Zisman said Lotus' Web strategy for Notes is just part of its overall software Web strategy, which includes its SmartSuite software and the Web integration efforts spearheaded by IBM.

When Notes 4.0 ships at the end of this month, it will include InterNotes Web Navigator, a Web browser similar to Microsoft's Internet Explorer. But users will also be able to call up Web links from within a Notes document without having to open Netscape Communications Corp.'s Navigator or any other Web browser.

Notes users especially zeroed in on the Web integration pieces.

"Lotus had to do it. We needed a browser and a Notes client; now we can get both in one," said John Parkinson, a partner at Ernst & Young in Irving, Texas. "The firm is having trouble integrating Notes and a Web server on its own," he said.

Lotus defines Notes as an application development environment for creating and managing workgroup programs and data. But with Notes' strong database features and the ability to manage Web access that will be part of Notes 4.0, analysts said the software will provide a broader, more useful set of features.

"Lotus is driving Notes into the pole position to be the first value-added business application on the Web," said Gerry Murray, an analyst at International Data Corp. in

Notes Mail joins the family

Lotus is trying to clear up its messaging strategy with Notes Mail, an electronic-mail product that features the CC-Mail interface and a subset of Notes functions.

Industry watchers think Lotus would like CC-Mail users to move to Notes eventually, but Lotus made it clear that it would continue to support and fund CC-Mail development. Promised upgrades are late in coming, however.

Notes Mail will be available as a stand-alone product or as part of Notes 4.0, which is due by the end of the month.

The software includes the InterNotes Web Navigator, which lets users look at a Web link embedded in a Notes mail message. Other features include client support for Web browsers, desktop application suites and Messaging Application Programming Interface-compliant applications. In addition, a Do Not Copy option lets users send read-only messages.

"The message [to CC-Mail users] is, 'We'll keep supporting you as long as you want, but why don't you jump on Notes right now,'" said David Marshall, an analyst at Patricia Seybold Group.

"If Notes is now in the same price range as products with mail and bulletin board capabilities, why not go ahead and get Notes and some extra goodies with it?" asked Sally DeJarnett, secretary and treasurer at the Worldwide Association of Lotus Notes Users and Technologists. — Tim O'Neill

Framingham, Mass.

"This is very important to us because of the interaction we can do with our customers," said John Hodge, chief information officer at NAC Reinsurance Corp. in Greenwich, Conn. "We are trying to utilize Notes beyond our company for intercompany communication."

And with the price cuts, "at the least, Notes with [HyperText Transport Protocol] is an extremely powerful, inexpensive Web server," said David Marshall, an analyst at Patricia Seybold Group in Boston.

But the price reductions might be too little, too late, at least at the

client level.

"Lotus should have done it a long time ago. Then there would be more Notes sites," said Sally DeJarnett, secretary and treasurer at the Worldwide Association of Lotus Notes Users and Technologists.

"It is all about data access," said Steve Weissman, principal at Knode Information in Waltham, Mass. "Nobody wants to maintain separate databases in different formats."

Senior writer Sarah Mokas contributed to this report.

 **Notes 4.0 reviewed.** See page 56.

Year 2000

CONTINUED FROM COVER I

forecast is overhauled.

"Granted, there's a lot of work to be done, but I would be very surprised if we have to add more capacity just for" year 2000 purposes, said Paul Quade, director of capital-planning and resource management at Gallie International, an on-line reservations consortium in Englewood, Colo.

Gallie has completed a year 2000 impact analysis and hopes to make most of the required application changes by the end of 1998 as part of its normal code update process. The leftover alterations needed to do away with Gallie's two-digit date fields would be done in one fell swoop in 1999.

"I haven't heard of anybody saying they're going to add a new processor to deal with the year

This way out... or no way out?

Methods for keeping mainframe usage in check during year 2000 projects and potential shortcomings.

Work later: Year 2000 conversion and testing can be done on weekends and during other off-hours.

Problem: It may take a lot of weekends, and scheduling employees could be a nightmare.

Prioritize changes: Other application development can be postponed to free up programmers and systems.

Problem: Management may not appreciate spending a lot of money to stand still.

Go desktop: PCs can be used to do some of the application conversion work.

Problem: Programs still must be compiled and tested on the mainframe, and those are the most resource-intensive jobs.

Remote control: Backup mainframes at hot sites or remote data centers can be tapped for year 2000 processing.

Problem: Disaster recovery capabilities would be reduced.

2000 problem," said Jeff Grigg, principal technical support analyst at Bath Iron Works Corp. in Bath, Maine. Scheduling time to do the conversion work is difficult. But processing capacity shouldn't be an issue for the shipbuilder because other application development work will likely be put on hold while the changes are made, he said.

Several other methods of avoiding mainframe purchases or upgrades also are available (see story at right). Yet other users who have year 2000 projects under way said they fully expect their need for processor capacity and mainframe disk storage to shoot up in the next few years.

Tampa Electric Co. in Florida had planned to downsize to a smaller mainframe after off-loading some applications to smaller systems. But after putting together a year 2000 plan, it decided to hang on to the bigger box, said

Debi Schubill, the utility's year 2000 project manager.

"The more you get into this, it keeps getting bigger and bigger because [the two-digit dating] is like a cancer throughout all your applications," Schubill said. Tampa Electric can't afford to stop development work to do the conversion, "so basically we have to do everything in parallel," she said.

Expanding data fields in support four digits will require full replication of some databases, said John Elcock, assistant vice president of computer resource management at General Accident Insurance of America in Philadelphia. That will eat up both CPU cycles and disk space.

Testing of the converted code also will be "very disruptive," Elcock said. "You have to test big portions of the application, or maybe the whole application, to make sure it really works. We'll need more MIPS for that."

The Back Page

A new view of the parallel universe

Charles Babcock

The discussion under way at Supercomputing '95 was whether visual programming environments, such as those for C and C++, would one day migrate to the high end.

Panelist Steve Wallach, senior vice president of technology at Convex, interjected that he had always programmed in assembly language. "What does that make me?" he asked. "Old," someone in the audience answered.

Indeed, many of the attendees at the recent San Diego event were showing their age.

Gray-bearded programmers wrung their hands in convention center hallways over low government spending on defense and national labs. A 30-year industry veteran, who as a graduate student had worked on one of the first Control Data Corp. 6600s, complained that Supercomputing '95 lacked focus and excitement compared with previous events.

The grizzled tales that made up this Greek chorus, however, should beware. There's a new age struggling to be born based on more component-based, stan-

dardized parts. Experienced supercomputer practitioners can become part of this new age or get pushed aside by those implementing its lessons.

The high-performance processors of the coming generation will have more MIPS than their predecessors, but they are as likely to come from Silicon Graphics, Sun Microsystems or Compaq as they are from Cray Research, IBM or Hitachi. There will be as many symmetrical multiprocessing designs as there are massively parallel or vector schemes. And they will be based more heavily on components with high-speed interconnects and I/O supplied by the vendor.

Instead of being liquid-cooled, multimillion-dollar machines will have closed doors at Oakridge, Sandia or Livermore laboratories, they will be out in the open in the workplace.

Yesterday's supercomputer was surrounded by attendants with white coats, but no operator will



The high priests of high performance are under siege and in danger of being deposed.

be in sight with the next-generation big iron. And instead of using sophisticated, one-of-a-kind compilers and applications, the super-servers will run software that could have been shoplifted off the shelves at Egghead.

Unlike their predecessors, the superservers will work with desktop users, not in isolation. In some ways, tomorrow's big iron will share more architectural similarities with the desktop than with the machines that went before it.

Today's parallel machine, even if it is made up of Intel microprocessors, is as alien to a PC as a spinning jenny. A large parallel machine requires special programming languages, compilers and optimizers. In some cases, a stable of programmers struggles

to redo specialized applications for each successive hardware generation. What is truly massive about most parallel processors is their ongoing expense.

Cherry Pancake of the Department of Computer Science at Oregon State University, who urges things differently, cited a \$50,000-line application that was rewritten for a \$1 million processor. The application cost \$5 million.

With Kendall Square Research and Thinking Machines in mind, Pancake warned that dysfunctional parallel systems could unleash a new metric mean time to bank ruptcy.

The purveyors of high-performance computing need to divorce themselves from their dependence on government spending and link up with growing networks of mixed systems. A few have adjusted to the fact that much of the computing initiative comes from the bottom up.

Why shouldn't programmers be able to develop parallel soft-

ware on the PC that could then run on a variety of parallel hardware platforms? Why shouldn't good but cheap parallel compilers be available for the PC, so that desktop applications also could run on multiprocessor machines as suggested by Vince Schuster, CEO at The Portland Group Inc.? The Wilsonville, Ore., company produces high-performance Fortran for parallel machines.

PC development environments provide tools that work with one another. Why don't parallel compilers work with other tools — debuggers, performance profilers, optimizers and editors — and reduce the learning curve?

The high priests of high performance are in danger of being deposed by technologists who better understand the lessons of quality and mass appeal.

They need to reconnect with the end-user network, which is still undergoing ferment and becoming something new even as we watch and aid the transition.

Babcock is *Computerworld's* technology editor. His Internet address is charles_babcock@ew.com.

Inside Lines

Revenge of the mainframe gods

One of the big problems that mainframe shops face when doing year 2000 application conversions is that many of the programmers who wrote the code have long since retired to somewhere warmer than the average data center. Often, they didn't leave much documentation behind them. But the programmers may not escape scot-free from the consequences of omitting four-digit date fields. "They'll realize something's wrong when they don't get their pension checks" after 1999 is rung out and 2000 is rung in, said one consultant.

Souping up the old jalopy

As part of its quest to rescue the AS/400's plodding Oldsmobile image, IBM plans in the middle of next year to expand its RISC models to support six and eight PowerPC processors, sources close to the company said. The first RISC AS/400s that are due to ship early next year top out at four CPUs, which doesn't match the size of rival high-end Unix boxes, IBM officials wouldn't comment.

Oracle files at Delta

Oracle has just landed a contract from Delta Air Lines worth up to \$9.9 million over the next five years. Signed last week, the contract makes the Oracle7 relational database management system Delta's standard enterprise-level RDBMS — and means it must always be used unless extenuating circumstances dictate choosing another vendor's product, said Chris Stellwag, a spokesman for the AT&T/Delta partnership that handles Delta's technical development. Other RDBMSs already in operation at Delta — such as Sybase — will be replaced by Oracle as

required. Sybase made a strong but unsuccessful bid to become Delta's corporate standard.

Just E-mail that fruitcake

This year will be the last you have to send your E-mail holiday cards to such gobbledegook addresses as 10246.3215 or HFD884A. CompuServe and Prodigy are letting users pick their own alphanumeric strings — SANTA, for instance, or RUDOLPH — as addresses. The change puts CompuServe and Prodigy on a par with America Online and The Microsoft Network. The on-line services next year will let users digitize fruitcakes and

send the tasty morsels as binary E-mail attach files. (OK, we made up the part about the fruitcakes.)

A call for the Million Geek March

Reaction was swift, and characteristically wry, last week when congressional negotiators reached agreement on separate anti-spam provisions to telecommunications laws. Their goal is to outlaw transmission of obscene materials to minors via the Internet, online services and other networks. Protesters mobilized immediately. Some in San Francisco sported slogans such as "USA out of my URL." A *Wired* magazine editor called for a "Million Geek March" on Washington by the on-line community.

Floating past the Butterfly

IBM PC Co. has not abandoned its subnotebook, the Butterfly ThinkPad, but it is working on releasing a rival. The company expects sometime in the spring to release a slim laptop that weighs less than 5 pounds. The laptop probably will have a larger screen than the Butterfly's 10.4-inch screen. The two notebooks will then battle it out in the marketplace, sources said.

Lotus must have felt that the attendees at its Web and E-mail strategy announcement needed a little prodding to believe what they were hearing. Prior to the start of the presentation — which included interpreting Notes with the Web — Joe Cocker's version of "Have a Little Faith in Me" was played over the loudspeakers. And if you've got a little faith in some new tips you'd like us to check out, contact Computerworld through our 24-hour voice-mail tip line at (508) 820-8555 or our toll-free number at (800) 343-6474. News editor Marylyn Johnson can be reached by phone at (508) 820-8179 or via the Internet at marylyn_johnson@ew.com.

The 5th Wave by Rich Tennant



Ch. 12: "I'm just something I picked up as a geek toy" (special from the Clinician's Web Page)

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